

Program and Abstracts Celebration of Student Scholarship



**Showcase of Student Research,
Scholarship, Creative Work,
and Performance Arts**

April 27, 2016

Celebration of Student Scholarship

April 27, 2016

Program Overview

Adron Doran University Center (ADUC)

7:45 – 8:30 am

All student scholars and faculty mentors are to register and pick up programs and name badges (3rd floor ADUC), Posters should be set-up at this time and PowerPoints loaded.

8:30 – 10:15 am

Oral Presentations (ADUC 301, 302, 312, Riggle, Commonwealth, Eagle Meeting and Eagle Dining Room)

10:15 – 10:30 am

Break

10:30 – 11:45 am

Oral Presentations

11:45 – 12:00 pm

Break

12:00 – 1:15 pm

Oral Presentations

1:15 – 3:00 pm

Poster Presentations (posters left up until 4:30 pm)

3:00 – 5:00 pm

Reception (Crager Room, all invited)

3:15 – 3:30 pm

Gallaher Memorial Music Performance

3:30 – 4:30 pm

Awards

4:30 pm

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Wayne Andrews, President

Steven Ralston, Provost and Vice President for Academic Affairs

Michael Henson, Associate Vice President for Research and Dean of the Graduate School

Robert Albert, Dean, College of Business and Technology

Margo DelliCarpini, Dean, College of Education

M. Scott McBride, Dean, Caudill College of Arts, Humanities and Social Sciences

Roger McNeil, Dean, College of Science

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Division of Academic Affairs/Office of the Provost

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<i>Murray Bessette</i>	<i>Julia Finch</i>	<i>Chris Miller</i>
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<i>Louise Cooper</i>	<i>Philip Krummrich</i>	<i>Fujuan Tan</i>
<i>Laurie Couch</i>	<i>J. Marshall</i>	

Concurrent Session Moderators

<i>Robert Albert</i>	<i>Bruce Mattingly</i>	<i>Greg Russell</i>
<i>Margo DelliCarpini</i>	<i>Scott McBride</i>	<i>Ahmad Zargari</i>
<i>William Green</i>	<i>Roger McNeil</i>	
<i>Calvin Lindell</i>	<i>Tom Pannuti</i>	

Judges

<i>Annie Adams</i>	<i>Laurie Couch</i>	<i>Steve Hooker</i>	<i>Kim Nettleton</i>	<i>Sam Stapleton</i>
<i>Dora Ahmadi</i>	<i>Thomas Creahan</i>	<i>Jami Hornbuckle</i>	<i>Tim O'Brien</i>	<i>Sherry Stultz</i>
<i>Larry Albert</i>	<i>John Curry</i>	<i>Lloyd Jaisingh</i>	<i>Jen O'Keefe</i>	<i>Fariborz Tavangarian</i>
<i>Elizabeth Ash</i>	<i>Nathan Dishman</i>	<i>Eric Jerde</i>	<i>Jorge Ortega-Moody</i>	<i>Karen Taylor</i>
<i>Ray Bailey</i>	<i>David Eisenhour</i>	<i>Charles Jones</i>	<i>Lynn Parsons</i>	<i>Paul Taylor</i>
<i>Bernadette Barton</i>	<i>Christopher Field</i>	<i>Jeannie Justice</i>	<i>Becky Parton</i>	<i>Tim Thornberry</i>
<i>Chris Beckham</i>	<i>Julia Finch</i>	<i>Becky Katz</i>	<i>Elizabeth Perkins</i>	<i>Ahmad Zargari</i>
<i>Ignacio Birriel</i>	<i>Ben Fitzpatrick</i>	<i>Michael Kessinger</i>	<i>Kim Peterson</i>	
<i>Jennifer Birriel</i>	<i>Sarah Garven</i>	<i>Shari Kidwell</i>	<i>Jeanne Petsch</i>	
<i>Megan Boone</i>	<i>Cyndi Gibbs</i>	<i>Phil Krummrich</i>	<i>Clarenda Phillips</i>	
<i>Amy Brown</i>	<i>Gina Gonzalez</i>	<i>Lesia Lennex</i>	<i>Jonathan Pidluzny</i>	
<i>Summer Bryant</i>	<i>Wretha Goodpaster</i>	<i>Thomas Lewis</i>	<i>Janet Ratliff</i>	
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<i>Katy Carlson</i>	<i>David Gregory</i>	<i>Krys Lynam</i>	<i>Gilbert Remillard</i>	
<i>Duane Chappell</i>	<i>William Grise</i>	<i>Monica Magner</i>	<i>Chad Rogers</i>	
<i>Doug Chatham</i>	<i>David Gross</i>	<i>Jim Masterson</i>	<i>Greg Russell</i>	
<i>Somu Chatterjee</i>	<i>Dirk Grupe</i>	<i>Bruce Mattingly</i>	<i>Pam Ryan</i>	
<i>Steve Chen</i>	<i>April Haight</i>	<i>Lucy Mays</i>	<i>Shahrokh Sani</i>	
<i>Kelly Collinsworth</i>	<i>Michael Hail</i>	<i>Gregory McBrayer</i>	<i>David Saxon</i>	
<i>Amy Conley-Salaz</i>	<i>Lynn Haller</i>	<i>Michelle McClave</i>	<i>Edna Schack</i>	
<i>Chuck Conner</i>	<i>Dee Hamm</i>	<i>Janet McCoy</i>	<i>Dayna Seelig</i>	
<i>Timothy Conner</i>	<i>Constance Hardesty</i>	<i>Troy Meadows</i>	<i>Kimberlee Sharp</i>	
<i>Christina Conroy</i>	<i>Timothy Hare</i>	<i>April Miller</i>	<i>Mee-Ryoung Shon</i>	
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<i>Marcia Cooper</i>	<i>Toni Hobbs</i>	<i>Sarah Mollette</i>	<i>Delar Singh</i>	
<i>Greg Corso</i>	<i>Dawn Hood</i>	<i>Johnathan Nelson</i>	<i>Ron Skidmore</i>	

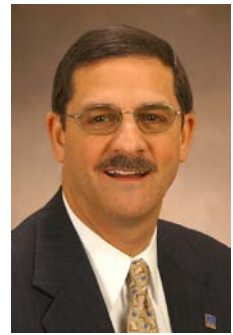
2016 Posters-at-the-Capitol Participants

Posters-at-the-Capitol, an annual event collaboratively hosted in Frankfort by all of Kentucky's public institutions of higher learning, enables members of the legislature and the Governor to better understand the importance of involving undergraduates in research, scholarship, and creative endeavor. The following Morehead State University students are recognized as official 2016 participants.

Tracy Blevins – *Mentor Bernadette Barton*
Tessa Combs – *Mentor C. Brent Rogers*
Tyler Davis – *Mentor Steve Chen*
Charlie Day – *Mentor Joy Gritton*
Elizabeth Dotson – *Mentor Joy Gritton*
Jessica Farrell – *Mentors Jordan Kislear/Jennifer Birriel*
Logan W. Fields – *Mentor Wesley White*
Joshua Z. Fugate – *Mentor Wilson J. Gonzalez-Espada*
Kelly Gardner – *Mentor Christina Conroy*
Sydney Gebka – *Mentor Johnathan K. Nelson*
Brittany Gill – *Mentor Lori Baruth*
Sydney Guffey – *Mentor Joy Gritton*
Julieann Helton – *Mentor Joy Gritton*
Hannah L. Howard – *Mentor Wesley White*
Lin-hsiu Huang – *Mentor Ann Andalaro*
Maria Kallas – *Mentors John H. Curry/April Miller*
Janie Knell – *Mentor Wilson J. Gonzalez-Espada*
Jason T. McClurg – *Mentor Wesley White*
Christopher J. Nunley – *Mentor Christina Conroy*
Jamee Rogers – *Mentor Joy Gritton*
Robert Rowlett – *Mentor Hans Chapman*
Kyle M. Smith – *Mentor Joy Gritton*
Cierra Thompson – *Mentor Julie Harp Rutland*
Jasmine Wheeler – *Mentor Joy Gritton*
Katherine Wilkerson – *Mentor Ann Andalaro*
Brittany Wilson – *Mentor Kim Nettleton*

*For more information on the 2016 Posters-at-the-Capitol please go to:
<http://campus.murraystate.edu/services/URSA/2016postersbooklet.pdf>*

Morehead State University is deeply committed to a culture of undergraduate research since it provides a rich educational experience for our students and empowers our diverse population of scholars to reach their educational goals. Now in its eleventh year, our Annual Celebration of Student Scholarship is a time when we can all pause to reflect on the outstanding efforts of this community of scholars and to recognize the tremendous efforts of our students in research, scholarship and creative productions.



To ensure the optimal environment for learning, Morehead State University has a long tradition of combining great teaching with success in scholarship and creative productions. I firmly believe that the faculty who mentor students in research and other creative activities provide the stimulus that challenges imaginative minds often in new and innovative ways that would be impossible within the confines of the conventional classroom. In accomplishing this, our academic programs provide a wealth of opportunities for students to work alongside experienced faculty in meaningful research and creative initiatives that stretch our students' intellectual horizons.

The Annual Celebration provides a welcome opportunity for everyone to see the products of these unique intellectual partnerships -- products that are truly amazing in their originality, scope, and depth. As you review the Celebration of Student Scholarship program, you will discover a wide range of student accomplishments in individual and group research projects, creative efforts, and artistic performances across all academic disciplines.

Our collective vision is for Morehead State University to be universally recognized for teaching and scholarship of the highest quality. When considering the accomplishments on display at this year's Celebration, I am confident that through the continued efforts of all those involved, our University will indeed become a primary destination for students who wish to become both active partners in the process of discovery and exceptional citizens of our increasingly challenging world.

I encourage you to attend this showcase and provide your support and encouragement to our young scholars and artists, as well as to the members of our faculty and staff who have lent their talents to bring these projects to fruition. Thank you for your participation!

Wayne D. Andrews, President

I am pleased to be a part of the Celebration of Student Scholarship as we recognize the outstanding scholarly accomplishments of our students and their faculty mentors. Across the academy, the primary setting for teaching and learning centers around the curriculum and student engagement as related to structured classroom activities; however, it is the participation in research and creative production activities that provides an opportunity for students to transition from learner to scholar. Student engagement through inquiry that involves seeking answers to research questions or creative expression based on theories and principles provides the learner a different approach and perspective to learning.



"Out of class" experience provided by their faculty mentors have opened doors to new learning opportunities for students as they discover the depth of their own abilities through the application and investigation of knowledge. Partnering with their faculty mentor(s), students are challenged to seek answers to questions through inquiry or apply their creative skills and talents that stretch their base knowledge and compliment their learning opportunities.

This Annual Celebration is an excellent illustration of the integration of scholarship, teaching, and learning. A special "Thank You!" to faculty mentors for their contributions to the intellectual and creative development of our students. "Congratulations" to all of our student scholars for their continued success.

Dr. Steven Ralston, Provost and Vice President for Academic Affairs



The Eleventh Annual Celebration of Student Scholarship spotlights Morehead State University as a premiere destination for all who desire a world-class education that is catalyzed by the personal mentorship of a world-class faculty. It is well accepted in academic circles that involvement in research and creative endeavor empowers students at both undergraduate and graduate levels to better analyze problems and synthesize solutions, thus helping them to better prepare for productive careers and leadership in their chosen fields, as well as to be well-informed, enthusiastic contributors to a progressive 21st century society. My congratulations and my thanks to our students and faculty for recognizing these facts and for their much-valued participation.

Dr. Michael Henson, Associate Vice President for Research and Dean of the Graduate School

The Celebration of Student Scholarship is the capstone event that recognizes the important contributions of faculty and student collaborative research to the overall education of our students at Morehead State University. Our faculty and students alike benefit tremendously from these one-on-one teaching and learning experiences.



Dr. Robert Albert, Dean, College of Business and Technology



The Celebration of Student Scholarship provides a wonderful forum for our talented students to share their research related to the Scholarship of Teaching and Learning (SoTL), which is a critical component to the successful and effective preparation of P-12 educators. As the field of educator preparation changes in response to local, state, and national trends, we see an increased focus on research-based and theory-grounded practice and the ability for professional educators to engage in data informed decision making. The work that these candidates are presenting underscores the valuable lessons learned from classroom research and builds the necessary skills for our future professional educators.

The research projects presented here highlight the intentional, systematic, and contextual inquiry that is vital to excellence in teaching in learning and underscores the development of lifelong learners among our teacher candidate population. The College of Education faculty and staff congratulate these students on their scholarly endeavors and share in their celebration of the SoTL.

Dr. Margo DelliCarpini, Dean, College of Education

The faculty and staff within the arts, humanities, and social sciences are committed to experiential learning that joins students with their faculty mentors as practicing partners in research and creative production. Through scholarly engagement our students innovate, create and deepen their understandings and insights. We are proud to recognize these outstanding scholars, showcase our culture of academic excellence, and celebrate Morehead State University's long tradition of providing substantial educational opportunities to the citizens of Kentucky.



Dr. M. Scott McBride, Dean, Caudill College of Arts, Humanities, and Social Sciences



The Celebration of Student Scholarship provides a wonderful opportunity to recognize and highlight student scholarship and creative accomplishments. Student research and creative activities, as a collaborative enterprise between student and faculty mentor, is a critical component of undergraduate education and enhances student success as well as teaching and learning across the academy. Students working with faculty experience the excitement of creating new knowledge and solving challenging problems – increasing important life skills in today's world.

Dr. Roger McNeil, Dean, College of Science

Celebration of Student Scholarship

Adron Doran University Center
Morehead State University

April 27, 2016

Concurrent Session – Commonwealth Room

Moderator: Dr. Robert Albert, Dr. Greg Russell, and Dr. Bruce Mattingly

8:30 – 8:45 a.m. The mystery figures behind Thomas Jefferson’s political ideology

CS - 01

***Brooke Blair, Dr. Gregory McBrayer, Mentor, Public Management and Government, College of Business and Technology**

Thomas Jefferson one of America’s leading statesmen. He was the principal author of the *Declaration of Independence*, governor of Virginia, and the third U.S. president. Jefferson was an avid reader who enjoyed reading a wide-range of philosophical works, and the ideas he encountered in these works had a great impact on the founding of the United States. He was greatly influenced by Locke, Newton, and Bacon, and their influence on Jefferson has been well documented. This research paper will examine the influence of other, often neglected, figures who exerted enormous influence on Jefferson’s thought, including Lord Bolingbroke and the Third Earl of Shaftesbury. This research paper will examine their political and religious ideologies and provide evidence of their influence upon Jefferson. This research was funded with an Undergraduate Research Fellowship.

8:45 – 9:00 a.m. Resilient communists: How Fidel Castro survived the Soviet collapse and Cuba’s uncertain road to democracy

CS - 02

***Max J. Prowant, Dr. Jonathan Pidluzny, Mentor, Public Management and Government, College of Business and Technology**

It is easy to conclude that Fidel Castro was nothing more than a pawn of the Soviet Union and Cuba was a communist satellite nation throughout the Cold War. The island received an annual subsidy of four billion dollars from the U.S.S.R. and hosted Soviet troops. When the Soviet Union collapsed, Cuba’s GDP declined by between 30 and 40 percent. Despite this, Cuba’s communist regime survived – even as democracy was spreading in Eastern Europe and South America. This project argues that the Castros sustained their autocratic regime by fostering a robust Cuban nationalism and permitting managed economic and political liberalization.

Cuba now faces another opportune time for change. Raul Castro is set to step down from the presidency in 2018 amidst another economic crisis. Unfortunately, democratizing reformers remain relatively unorganized, especially compared to the Cuban Communist Party and the military-controlled Revolutionary Armed Forces. This paper concludes that prospects for meaningful democratizing reforms are bleak, and will remain so in the absence of meaningful economic liberalization and the development of a robust civil society.

***undergraduate student presenter**

+graduate student presenter

9:00 – 9:15 a.m. The paradox of the progressive presidency: How the democratization of the presidential selection system has degraded the office

CS ▪ 03

****Tyler Syck, Dr. Jonathan Pidluzny, Mentor, Public Management and Government, College of Business and Technology***

This presentation examines how the presidential selection system has evolved over time and the negative effects this evolution has produced. The Framers created a complicated selection process hoping their system would elevate “men of first character”. Progressive reformers worked to democratize the selection process over the course of the twentieth century. Their reforms led to the open primary and caucus system Americans know today. The numerous problems with this system are more evident in the current presidential election than in any before. Donald Trump appeals to the anger many conservatives feel towards the liberalism of the Obama administration. Bernie Sanders appeals to the anger and idealism of people who feel the current political and economic system unjustly forecloses opportunities that should be open to them. The presentation concludes by arguing that new reforms to the selection process, designed to undo key democratizing reforms, are vital to restore the presidency to its former glory.

9:15 – 9:30 a.m. Reconsidering Aristotle’s political science

CS ▪ 04

****Henry T. Quillen, Dr. Gregory McBrayer, Mentor, Public Management and Government, College of Business and Technology***

Although the political thought of Aristotle is among the most often-read in the world, it is almost always approached with modern, yet inappropriate methods of inquiry. Insistence on quantitative research and methodology parallel to those used in the natural sciences has led to his thought being outright rejected without proper consideration or refute. Though often unnoticed, Aristotle outlined his own methodology—which seems compellingly more appropriate for political science. Using his own methodology viz., exhaustive consideration of particular points of inquiry, yet nonetheless recognizing the limitations of a subject riddled with particulars, this presentation seeks to explore Aristotle’s political thought, and to reconsider and evaluate it on his own terms. Using Aristotle’s *Nicomachean Ethics*, *Eudemian Ethics*, and *Politics*, the presentation will investigate the four questions which Aristotle himself says the political scientist should consider, i.e. the best regime, the best regime under less than ideal circumstances, the means of stabilizing a regime, and the regime that will suit all fairly well.

9:30 – 9:45 a.m. Analyzing the effect of center-based child care enrollment on externalizing behaviors

CS ▪ 05

****Adam R. Bocook, Taylor F. Zumwalt, Dr. Timothy Thornberry, Mentor, Department of Psychology, College of Science***

The role of center-based child care (e.g., child care center, preschool, or head start program) in a child’s disruptive behavior is well recognized. Evidence suggests that those who have attended a head start program were rated by their mothers as having fewer behavior problems than those who had not attended a head start program (U.S. Department of Health and Human Services, Administration for Children and Families. 2003). Additional evidence suggests that community-based center care may reduce externalizing problems (Crosby et al., 2010). The present study looks to explore the relationship between a child’s disruptive behavior and the child’s enrollment in a center-based child care center in Eastern Kentucky, a historically underserved and understudied population. Behavior observations and parent-report on the Behavior Assessment System for Children 2 (BASC-2), Eyberg Child Behavior Inventory (ECBI), Parent Stress Index (PSI), and Thornberry Observation Reactivity Questionnaire (TORQ) were used to measure child externalizing problems. It is hypothesized that those who attended center-based child care will exhibit less externalizing symptoms. This research was funded by an MSU undergraduate research fellowship provided by the Appalachian Health and Research Center Research Seed Grant.

9:45 – 10:00 a.m. Let's be friends: An investigation of ex-partner friendships and adjustment after romantic breakup

CS = 6

****Katelyn S. Hanes, Dr. Laurie L. Couch, Mentor, Department of Psychology, College of Science***

The project sought to determine whether staying friends with an ex-partner would have negative effects on one's attempts to get over a romantic breakup. Whereas some wish to maintain friendships in order to continue receiving relational benefits from ex-partners after breakup, it was hypothesized that doing so may lead to suffering and hinder recovery after the event. Thus, post-breakup recovery was assessed through an online survey of 144 college students whose romantic partners had broken up with them. A statistical comparison (via a MANCOVA) was made of post-breakup friends vs. non-friends on three types of adjustment (e.g., post-breakup negative emotions, continued rumination, unresolved grief), while also controlling for the passage of time. Results revealed that friendship status was reliably associated with adjustment problems after breakup. Specifically, independent of the passage of time, those who were friends with their ex-partners reported greater continuing post-breakup grief and rumination than those who were not friends with their ex-partners. Negative post-breakup emotions, however, were unrelated to friendship status. Results will be discussed in terms of their clinical implications and significance for individuals trying to get over a breakup.

10:00 – 10:15 a.m. Rating the visual complexity in roadway scenes

CS = 07

****Zoe M. Becerra, Dr. Gregory M. Corso, Mentor, Department of Psychology, College of Science***

The purpose for this study was to investigate items that might contribute to the judged level of complexity in a dynamic visual scene. Participants ($N=42$) viewed 64 videos from a driver's perspective of driving on a roadway. Each video lasted 21 seconds. The participants were required to judge the level of complexity of a visual scene by moving a slider using the mouse along a rating scale. The rating scale was anchored at the left end with the descriptor 'low complexity' and at the right end with the descriptor 'high complexity'. Five variables were manipulated: location (city vs. rural), barrier type (cement vs. cone), traffic level (heavy vs. light), barrier location (outside lanes, inside and outside lanes, and with or without construction) and first or second scene appearance. Results showed significant (.01) rated complexity differences for location, barrier type, traffic level, and barrier location. As would be expected city location, cone barrier ($M=527.53$), and heavy traffic ($M=555.86$) were rated more complex. The complexity ratings for the first and second scene appearance were not significantly different suggesting that the rating was consistent. Several significant interactions were observed and will be discussed.

10:15 – 10:30 a.m. Break

10:30 – 10:45 a.m. On the relation between binary classification and attention deficit hyperactivity disorder

CS = 08

****James W. Casper, Zoe M. Becerra, Hannah M. Smith, Dr. Gregory M. Corso, Mentor, Department of Psychology, College of Science***

The purpose for this study was to identify whether relationships among a binary classification task (BCT), Conners' Continuous Performance Test (CCPT), and the Test of Variables of Attention (TOVA) exist. Such a relationship might be useful in identifying the locus of Attention Deficit Hyperactivity Disorder. The BCT had 36 trials (18 per session) composed of set sizes ranging from two to seven items. For the BCT, each participant ($N=56$) determined if a probe letter was contained within a memorized set of items. Each participant also completed the TOVA and CCPT. For all three tasks the dependent variable was response time for positive correct responses (hits). Prior research on the BCT suggests that the intercept of a regression line for correct response time as a function of set size indicates encoding time and the slope of the regression line indicates memory scanning time. It was expected that correlations among the various TOVA and CCPT subtests would be significant and they were. Also found were significant correlations between the intercept of the BCT regression line and both subtests of the TOVA and the CPTAXX subtest of the CCPT. The slope of the regression was not significantly correlated with any subtests.

10:45 – 11:00 a.m. The crutch phenomenon: Religiosity and its effects on mental health

CS - 09

****D. Alexander Pruitt, Amanda R. Allen, Dr. Lynn Haller, Mentor, Department of Psychology, College of Science***

The debate over the belief in a higher power's possible effects on mental health has gained momentum with researchers over the years. The empirical evidence that exists sufficiently supports the ever growing possibility that religiosity can have significant effects on mental health (Koenig, McCullough & Larson, 2001; Schafer, 1997). Research in the field of religious effects on stress, as well as, religious ideation and perceived social well-being must be examined in the field with focus on differentiations in experimental design and population sampling. Our study examines how implicit reminders of religion could bear influence on a college student's level of perceived stress. It is our hypothesis that those who have been primed with these implicit reminders of religion will show a decreased level of stress, more so than those who have not had an active primer for religion.

While also observing how participants own religious identity factored into their perceived stress. While employing valid measures no data has been found to suggest that college students in rural Appalachia (N=41) have had any significant differences in stress due to religious priming. While a relationship was found between high religious cognition and similar religious belief among friends and family.

11:00 – 11:15 a.m. The role of mindfulness and inhibitory control on implicit sequence learning

CS - 10

****Derek McClellan, Dr. Gilbert Remillard, Mentor, Department of Psychology, College of Science***

Research examining the relationship between mindfulness (i.e., the ability to remain focused in the present) and implicit sequence learning (i.e., the ability to learn the structure of sequences in the absence of awareness of the structure) has yielded contradictory results. We further examined the relationship between mindfulness and implicit sequence learning and also examined ability to inhibit prepotent responses as a potential mediator/moderator. Participants completed a mindfulness inventory (Mindfulness Attention Awareness Scale) and two computer-based tasks. The first task (Sustained Attention to Response Task) measured inhibitory control by requiring participants to respond to most stimuli in a sequence of stimuli and to withhold responding to a rare stimulus. The second task (Serial Reaction Time Task) measured implicit sequence learning by exposing participants to a sequence of stimulus locations and requiring participants to respond to each stimulus location with a corresponding key press. Unbeknownst to participants, the sequence of stimulus locations was structured in that the next location of the stimulus was dependent on the previous location of the stimulus. Participants' awareness of the sequence structure was assessed using a questionnaire. This research was funded with an Undergraduate Research Fellowship.

11:15 – 11:30 a.m. Sustained motivation requires an intact prefrontal cortex

CS - 11

****Hannah L. Howard, Dr. Wesley White and Dr. Ilun M. White, Mentors, Department of Psychology, College of Science***

The prefrontal cortex is implicated in response selection or goal-directed behavior, which involves various processes. The present study examined the involvement of the prefrontal cortex in motivation, an internal process that maintains goal directed behavior. Male Wistar rats were shaped to lever-press for a food pellet, and then received either excitotoxic or sham lesions in the medial prefrontal cortex. After a 4-week recovery period, rats were trained in two simple learning tasks with different workloads: fixed ratio-5 (FR5, 5 lever-presses for a pellet) and with fixed ratio-20 (FR20, 20 lever-presses for a pellet). The order of fixed ratio training was counterbalanced, alternating for 6 consecutive days (a session/day). Performance measures were the first response latency, runtime, pellet-retrieval latency, and the number of earned pellets. Compared to rats with sham lesions, rats with prefrontal lesions, markedly increased their first response latency, runtime, and pellet-retrieval latency in both FR5 and FR20, with greater deficits during FR20, which required enhanced workload and attention. The number of earned pellets was not affected in either group. Our results indicate that the prefrontal cortex is required to maintain a sustained motivational state through the control of responses under conditions which demand a greater response requirement. Supported by R15DA015351.

11:30 – 11:45 a.m. Having an orgasm is like eating cake: How political affiliation and media presentation has an effect on sexual metaphor production

CS - 12

+Samantha Lowe, Kimberly Obermeyer, Jeremy Justice, Lindsey Yates, Isabella Gearhart, Ashley Duvall, Dr. Lynn Haller, Mentor, Department of Psychology, College of Science

Metaphor use is considered an advantageous tool for communicating abstract and novel emotional states that otherwise may not be communicated literally (Ortony, 1975; Fainsilber & Ortony, 1987). To encourage metaphor production, participants were presented with a persuasive metaphoric speech or literal speech. Students reported sexual activity and completed a *Sociocultural Attitude Scale* (SCAS) measuring political liberalism or conservatism. The SCAS had a moderate level of internal consistency, as determined by a Cronbach's alpha of 0.727. Students were then asked to create metaphors about sexual and non-sexual stimuli, resulting in a total number of produced metaphors. Analysis revealed a main effect of the positive metaphoric speech, $F(1,306)=18.013$, $MSE=512.003$, $P=.000$, supporting our hypothesis that metaphoric speech about sexual topics can be influenced by exposure to similar content. A significant interaction was found between our metaphor and literal speech manipulation and virginity, $F(1,306)=9.715$, $MSE=276.143$, $P=.002$. A second interaction was observed between completion media and SCAS scores, $F(1,306)=8.548$, $MSE=242.976$, $P=.000$, with liberals producing more metaphors in our online condition. Completing the interview online or face-to-face, proved to be the most powerful manipulation, with no statistically significant results within our face-to-face condition. Persuasive metaphoric speech facilitated virgins' ability to communicate metaphorically about novel abstract constructs.

11:45 – 12:00 p.m. Break

12:00 – 12:15 p.m. Confidence as a consequence: Exploring correlations between self-esteem and personality

CS - 13

***Taylor F. Zumwalt, Samantha Lowe, Dr. Lynn Haller, Mentor, Department of Psychology, College of Science**

Low levels of self-esteem are rampant in the United States, causing a myriad of negative manifestations, including eating disorders, relationship violence, and self-loathing. There are no known causal relationships in the fluctuations of self-esteem. There are, however, factors that are thought to be correlated with these changes. Current research tends to cite both the age and certain personality characteristics (particularly, extroversion) of the individual as significant factors in the instability of these levels (Erol & Orth, 2011). It is also known that collegiate level adults tend to exhibit significant drops in self-esteem during varying points of their college careers (Chung et al., 2014). In this present study, a correlation between self-esteem and various personality traits of college students are explored. Participants were recruited from a college located in the southeastern region of the United States. Individuals completed an online survey that included the Rosenberg Self-Esteem Assessment (Rosenberg, 1965) and the Myers Briggs Personality Inventory (Briggs, 1977). It is hypothesized that personality characteristics identified by the aforementioned inventory will be correlated with levels of self-esteem.

12:15 – 12:30 p.m. Analyzing relationships between anxiety and GPA in first-generation college students

CS - 14

****Taylor F. Zumwalt, Adam Bocook, Dr. Timothy Thornberry, Mentor,
Department of Psychology, College of Science***

First-generation college students face a more unique set of obstacles during their college career when compared to their continual-generation counterparts (Stephens et al., 2012). It may be due to these obstacles that this subset of the college population tends to earn significantly lower GPAs (Chen & Carroll, 2006). Although the vulnerability of this group is clear, there is a dearth of research investigating the mental health status of these individuals and its relation to academic success. This study sought to examine the relationship between anxiety and GPA for first-generation college students when compared to continual generation students using a cross-sectional survey design. Participants were recruited from a college located in the southeastern region of the United States. Individuals completed an online health survey that included the Generalized Anxiety Disorder Seven Item Scale (GAD 7) and questions assessing demographic information. It is hypothesized that first-generation college students will experience lower GPAs and higher levels of anxiety. Moreover, it is predicted that the relationship between the above variables will be stronger in first-generation college students than in continual-generation students. This research was funded by an MSU undergraduate research fellowship provided by the Appalachian Health and Research Center Research Seed Grant.

12:30 – 12:45 p.m. Mesoscale meteorological data identifies possible effects of climate change in Eastern Kentucky

CS - 15

****Joshua Z. Fugate, Dr. Wilson González-Espada, Mentor, Department of
Mathematics and Physics, College of Science***

The effects of global climate change, as predicted by the consensus of national and international scientists, are probably not going to be observed uniformly across all latitudes and longitudes. This highlights the importance of observing and analyzing meteorological data at the mesoscale level, that is, weather events that range in size from about one mile to about 150 miles and that might go undetected without densely spaced weather observations. This study applied statistical approaches to daily data between 2007-2015, obtained from several WKU Kentucky Mesoscale Network stations located in Eastern Kentucky. It was found that many Eastern KY counties showed evidence of statistically significant increases in climate parameters such as temperature, dew point, and solar radiation. Many Eastern KY counties showed evidence of a statistically significant decrease in average wind speed. No statistically significant differences in humidity or maximum wind speed were noted. This research was supported by the Undergraduate Research Fellows Program (Department of Mathematics & Physics/Office of Research and Sponsored Programs).

12:45 – 1:00 p.m. Mesoscale meteorological data identifies possible effects of climate change in Western Kentucky

CS - 16

****Janie L. Knell, Dr. Wilson González-Espada, Mentor, Department of
Mathematics and Physics, College of Science***

The most recent consensus of the scientific community regarding global climate change is straightforward: “Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history.” This study applied statistical approaches to daily data between 2007-2015 obtained from several WKU Kentucky Mesoscale Network stations, located in Western Kentucky, to test the predictions of global climate change at the mesoscale levels (between 1-150 miles in range). It was found that many Western KY counties showed evidence of statistically significant increases in climate parameters such as temperature, dew point, humidity, and solar radiation. Many Western KY counties showed evidence of a statistically significant decrease in average and maximum wind speed. Understanding mesoscale effects of climate change is important in order to plan ahead and make any necessary changes to minimize its economic and social impact. This research was supported by the Undergraduate Research Fellows Program (Department of Mathematics & Physics/Office of Research and Sponsored Programs).

Concurrent Session – Eagle Dining Room

Moderator: Dr. Margo DelliCarpini

8:30 – 8:45 a.m.

SOS! My inattentive student is disrupting the classroom!

CS - 17

****Maria Leeanne Kallas, Dr. April Miller, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

During the spring 2015 semester, I worked intensively with one student to dramatically change his behavior using applied behavior analysis. In a conversation with his teacher, the teacher said, “I feel like I have done student 1 a great disservice because I have not been able to find a behavior management strategy that works for him.” According to his teacher, he was a healthy child who was successful enough on state tests to hit all of the benchmarks, but did not otherwise excel.

During the fall 2015 semester, I repeated my hypothesis with a set of three first graders: students 24. Students 24 responded favorably under the same positive reinforcement conditions.

This presentation will examine the quantitative data collected during the spring 2015 and fall 2015 semesters. The data point included examines the 1:1 implementation through a Diffusions of Innovation theoretical framework. The presentation will cover the systematic implementation of a behavior change plan utilizing applied behavior analysis techniques to increase ontask behavior. It will challenge teachers to use other methods of classroom management than taking away recess for misbehavior.

This research has been presented at the KY ATE conference, Posters at the Capitol, and in Washington, DC at the NAPDS conference.

8:45 – 9:00 a.m.

Trends in stakeholders’ perceptions of Mason County’s 1:1 iPad implementation

CS - 18

****Maria Leeanne Kallas, Dr. John Curry, Mentor, Department of Foundational and Graduate Studies in Education, College of Education***

During the 2012-2013 school year, Mason County High School, located in Maysville, KY, launched a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. This comprehensive presentation will examine the qualitative and quantitative data collected across four years. The data points included examine trends in stakeholders’ perceptions from the 1:1 iPad implementation, specifically following the class of 2016 from their freshman year through their senior year. Additional data points include popular cheating methods, impact on test scores, and the effect on student motivation. This presentation has been presented at the Kentucky Association for Teacher Education conference, Posters at the Capitol, and National Association for Professional Development Schools conference in Washington D.C. This research is sponsored by Morehead State University’s College of Education through the Undergraduate Research Fellowship Program.

9:00 – 9:15 a.m. Distance education in law enforcement: Exploring Kentucky’s barriers

CS - 19

+*Brandon J. Combs, Dr. Jeannie Justice, Mentor, Department of Foundational and Graduate Studies in Education, College of Education*

The purpose of this study was to examine the barriers to implementing distance learning for law enforcement officers who serve in rural agencies across Kentucky as a means to meeting state mandated annual training requirements. A survey instrument from previous research was selected, and participants were asked 30 questions soliciting demographic data and potential barriers to implementation. A Likert scale was used on 26 of the questions, leaving four questions as open-ended response, allowing for qualitative analysis.

Once all surveys were completed, an exploratory factor analysis was conducted on the coded responses. The exploratory factor analysis identified two factors that represent potential barriers to implementing distance learning for law enforcement officers in Kentucky. Additionally, the qualitative data supported the results of the exploratory factor analysis. This study suggests that there is interest in distance learning as a means through which officers can complete their state mandated training. However, there are potential barriers that should be addressed prior to its implementation. Some of the primary concerns, or potential barriers, include agency resources, agency policies, and instructional support.

9:15 – 9:30 a.m. Perception of ExamSoft feedback reports as autonomy-support for learners

CS - 20

****Leah P. Simpson, Dr. Jeannie Justice, Mentor, Department of Foundational and Graduate Studies in Education, College of Education***

To be autonomy-supportive, feedback must provide students with an understanding of the goals of the assignment or course, give students information on how they have performed for each of those goals, and offer students guidance for improvement. The primary purpose of this study was to examine student perception of ExamSoft feedback reports as autonomy-support for learning. It was hypothesized that students who received ExamSoft feedback aligned to the course outcomes would review the feedback for autonomous rather than controlled reasons. A 43-item survey was administered to first year pharmacy students. Respondents were asked to rate various reasons for reviewing ExamSoft feedback. Results indicate that students review feedback for autonomous reasons, implying that ExamSoft feedback is autonomy-supportive. Further evidence indicates that students use the feedback to help them understand which topics need review as well as to begin conversations with course faculty about their progress. The findings offer insights into the ways faculty and other e-assessment providers can best support student learning and autonomy through feedback.

9:30 – 9:45 a.m. The mathematics and physics behind a volleyball serve

CS - 21

****Logan Greene, Dr. Vivian Cyrus, Mentor, Department of Mathematics and Physics, College of Science***

This research goes deep into the sport of volleyball using mathematics and physics to analyze different types of volleyball serves in an attempt to perfect serving techniques for any player. The Morehead State University volleyball team assisted in gathering data on several different types of serves. Data on topspin jump, floater, and underhand serves has been collected and analyzed to potentially reach this project’s goal. Preliminary results confirms that there is no “perfect” volleyball serve but by analyzing and perfecting their technique each player is able to improve their serve.

9:45 – 10:00 a.m. Physics of bowling balls: Moment of inertia & RG values

CS ▪ 22

****Cameron Broadbent, Dr. Jennifer Birriel, Mentor, Department of Mathematics and Physics, College of Science***

Bowling balls are characterized by more than just their weight. A bowling ball consists of a hard outer shell, called the cover stock, and a weighted block in the interior. The shape and mass of the block inside of the bowling ball affects both the spin of the ball and the curve of its path down the lane. The radius of gyration (RG) is a term commonly used by bowlers but probably not well understood. We will discuss how bowlers use the RG to improve their game and discuss the RG in terms of the moment of inertia of the ball. We measure the moment of inertia of five different bowling balls using a sonic ranging device and video analysis. These data are used to calculate the moment of inertia and compare these to the manufacture state RG values. Additionally, we see which generic mass distribution best corresponds to each state RG value. This knowledge should be useful to bowlers as it can help them better understand the physics of bowling.

10:00 – 10:15 a.m. Measuring night sky brightness in the RGB color bands

CS ▪ 23

****Lauren M. Duffy, Dr. Jennifer J. Birriel, Mentor, Department of Mathematics and Physics, College of Science***

The color spectrum of artificial, night-time lighting is significantly different from the spectrum of the natural night sky. In the past, the color spectra of both low and high pressure sodium lamps were "yellow rich" - similar to the spectrum of sunlight reflected by the moon at night. In a move to conserve energy, LED lighting is being implemented in cities across the globe. LED light tends to be "blue-rich" in comparison to older lamps. Since Rayleigh scattering is more efficient in the blue end of the spectrum, this will have an impact on the amount of light pollution these newer lamps contribute to the night sky. We constructed a portable device to measure the spectrum of the night sky using data logging Unihedron Sky Quality Meters and a set of color filters. The device allows us to make simultaneous measurements of the night sky through clear (L), red (R), green (G), and blue (B) filter bands.

We describe the design and construction of the device. We present preliminary data from several locations and compare our values to a "pristine" dark sky. Finally, we discuss our future measurement plans using the device. This work is supported by an MSU URF.

10:15 – 10:30 a.m. Break

10:30 – 10:45 a.m. Analysis of nighttime sky brightness data from January 2011 to February 2015 in Morehead, KY

CS ▪ 24

****Jessica N. Farrell, Dr. Jennifer Birriel and Dr. Ignacio Birriel, Mentors, Department of Mathematics and Physics, College of Science***

The overuse of artificial light at night is responsible for a pervasive astronomical and ecological problem known as light pollution. We collected night- sky brightness using a Unihedron Sky Quality Meter with Lens and Ethernet Connectivity (SQM-LE). The device we use to collect data is located within a weather-proof housing on the rooftop of Lappin Hall. Data were collected at five minute intervals from sunset to sunrise each night. This project built upon previous work done by analyzing a longer time period, working on the device's technicalities, and incorporating more variables, including the amount of time stadium lights were operated during the measurements. The new data was incorporated into my previous model, tested, and was used to improve the model. We also examine the amplification effect of cloudy skies, ground cover snow, and lunar phase. This research is supported by an MSU Undergraduate Research Fellowship.

10:45 – 11:00 a.m. Does innovative teaching help developmental math students?

CS - 25

****Charles Kiser, Dr. Robin Blankenship, Mentor, Department of Mathematics and Physics, College of Science***

This study compares innovative teaching to lecture teaching in the developmental mathematics setting. Groups from both categories are juxtaposed using data analysis techniques to discover the more beneficial method, if any. Statistical examination of the experiment methods and data collection procedures is used to determine the validity of the project.

11:00 – 11:15 a.m. Try-ominos: An attempt to prove rigid solutions

CS - 26

****Bethany Alloway, Dr. Robin Blankenship, Mentor, Department of Mathematics and Physics, College of Science***

Triominos are a type of polyomino where a piece is made by joining three equally-sized squares in such a way that any two squares in a piece are either connected by a shared edge or do not touch at all. A "right triomino" is a triomino shaped like a "V". This talk looks into the possibility of placing eight right triominos on an 8 x 8 grid in such a way that if the grid were rotated in any direction none of the pieces would change position. This project takes a Computer Science approach, by developing a program to solve not only this question, but many others related to it.

11:15 – 11:30 a.m. Things are not as they "seam"

CS - 27

****Tyler Keele, Dr. Ignacio Birriel, Mentor, Department of Mathematics and Physics, College of Science***

In 2015, the NCAA changed the ball in baseball from high-seam to low-seam and increased the circumference of the ball. The old baseball seams measured 0.048 inches off the surface, the new baseball seams were changed to measure 0.031. The objectives of this project is to analyze the differences between the two baseballs from a player and fan's point of view. The spin and drag on the ball effect the hitter at home plate and how far the ball travels over the right field fence. In this study a pitching machine was used, which has two rubber wheels spinning at the same revolution as the ball's velocity, to add spin to the ball and consistency to each throw. Video analysis software, Tracker, was used to record the ball's velocity and acceleration with respect to position as the ball traveled from the pitching mound to home plate. To simulate the batter, a platform was built where the contact surface angle can be changed to represent various hits in baseball. In this talk, the spin rate and the drag on the ball in addition the trajectory of the ball will be discussed.

11:30 – 11:45 a.m. The measurement of the radioactivity in outcrops of Ohio and Sunbury shale in Rowan County, KY

CS - 28

****Joshua Allen, Dr. Ignacio Birriel, Mentor, Department of Mathematics and Physics, College of Science***

Ohio Shale and Sunbury are fragmented rocks that are both part of the black organic shale family that is found throughout Kentucky. An outcrop of Ohio Shale, found in the northern part of Cave Run Lake, was used for this study. The outcrop can be split into two parts: the first consisting of only Ohio Shale while the second part consisting of the bottom most layer being the Ohio Shale covered by Three-Lick bed. Along the bottom of the outcrop measurements were made of only Ohio Shale while along the surface of the outcrop measurements consisted of both the uncovered Ohio Shale and the Ohio Shale covered by a layer of Three-Lick bed were made. The outcrop of Sunbury, found just north of the town of Morehead, is around 90 meters long and is the current location of this study. This presentation will discuss the radioactivity measured of this Ohio Shale outcrop and the preliminary measurements of the Sunbury outcrop.

11:45 – 12:00 p.m. Break

Concurrent Session - 301 ADUC

Moderator: Dr. Scott McBride

8:30 – 8:45 a.m. The autism spectrum

CS ▪ 29

****Chris Turner, Jeffrey Hill, Mentor, Department of Communication, Media, and Languages, Caudill College of Arts, Humanities, and Social Sciences***

Autism is an affliction which has a wide range of possible outcomes; it can yield an individual highly functional or one who is virtually catatonic. This documentary project explores those ranges through interviews with autistic individuals (including Mr. Turner's brother), as well as doctors, caregivers, and family members. The project highlights the challenges and rewards autistic individuals go through in day-to-day life. This creative project was funded with an Undergraduate Research Fellowship.

8:45 – 9:00 a.m. Animation: A brief history

CS ▪ 30

****Leah Floccare, Jeffrey Hill, Mentor, Department of Communication, Media, and Languages, Caudill College of Arts, Humanities, and Social Sciences***

Animation: A Brief History explores animation techniques from its origins to the present day. While at first blush a seemingly enormous task, it was manageable project. By starting from the early 1900's and concluding with the present day, the project allowed the student to explore animation techniques worldwide while focusing on American animation. This creative project was funded with an Undergraduate Research Fellowship.

9:00 – 9:15 a.m. *Hear Me Roar: An MSU – TV production*

CS ▪ 31

****Anna Nichols, *Christina Holbert, *Kathrine Wilkerson, Dr. Ann Andaloro, Mentor, Department of Communication, Media, and Languages, Caudill College of Arts, Humanities, and Social Sciences***

Hear Me Roar is a Morehead State University TV production broadcast on channel 85. The show features women who have overcome adversities such as body image, discrimination, health and beauty concerns, human trafficking, gendercide, and abusive relationships. The show also gives women the opportunity to speak their minds and express themselves through their talents. The Undergraduate Research Fellows work to find credible and notable guests to give expert and experienced information on issues facing women and minorities, produce short video segments featuring remarkable women, search out live talent, and collaborate to produce half hour shows. The goal of *Hear Me Roar* is to be a champion of confidence in one's own self- worth and provide a shining example of how media and collaboration can bring to light difficult social issues. Support for the project comes from Undergraduate Research Fellowships.

9:15 – 9:30 a.m. This is gendercide. Together, we can break this cycle

CS ▪ 32

****Lin-hsiu Huang, Dr. Ann Andaloro, Mentor, Department of Communication, Media, and Languages, Caudill College of Arts, Humanities, and Social Sciences***

Every 17 seconds, a female is killed or aborted simply because she is a girl; this is Gendercide, a genocide of one specific gender. As an artist for a non-profit organization, Give Her Life, I became passionate about raising awareness for this gender-selection issue. My art piece was displayed in North Hollywood, California. As an Undergraduate Research Fellow working for the MSU-TV production *Hear Me Roar*, I research, write, and produce segments for the show. I focused one specific segment on Gendercide to enlighten others on the issue. This presentation will examine this heavy topic further and using artwork for a greater cause. This research was supported by the Academic Honors Program and UG Fellowship.

9:30 – 9:45 a.m. Symbolic methods for analysis of security protocols

CS ▪ 33

****Linnea Scholin, Dr. Vivian Cyrus, Mentor, Department of Mathematics and Physics, College of Science***

The importance of Cryptography has grown significantly over the past decades. It is a field where the security of information is the main business to deal with, thus it plays a highly important role in our modern and digital life. For many years, experts have been trying to develop a method with the capability to protect the confidentiality of sensitive information against an unauthorized party. This research aims to explore the field of Cryptography to discover main events or cryptosystems that are, or have been, significant and find out why. Naturally, a cryptosystem is considered secure if it can keep the information secure for as long as it is needed. The Data Encryption Standard was the national standard until it was proven to be insecure, and was then replaced by the Advanced Encryption Standard in which the encryption key length is doubled in order to increase security. This encryption algorithm is still considered secure, but as our knowledge and technology keeps evolving so will our methods for protecting sensitive data have to.

10:15 – 10:30 a.m. Break

10:30 – 10:45 a.m. Police use of force

CS ▪ 34

****Ivan Benitez, Dr. Rebecca Katz, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

Recent media attention to police use of force reveals a level of violence unseen since the 1960s. The Washington Post's collected data significantly on police shootings conflicts with the Department of Justice data on police shooting. In response to media attention to these incidents, the Black Lives Matter movement grew and began demanding a change in police tactics as well as ending police militarization. In response to this incidents and the new social movement, this research will conduct a quantitative analysis of the 2011 Department of Justice Police National Public Contact Survey analyzing use of force of against the public by police. Additionally, a qualitative analysis will begin to examine Department of Justice issued consent decrees resulting from civil rights and due process violations in law enforcement practices across the country over the last five to ten years. Finally, we attempt to assess the nature of the Black Lives Matter Movement using various social media outlets.

10:45 – 11:00 a.m. Morality: Subjective or objective?

CS ▪ 35

***Kennedy Womack, Dr. Wendell O'Brien, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

This project seeks to discover whether the principle of morality is a subjective or objective concept. Is it possible that a person's moral compass can be different from the law of the land? If this is the case, could a person break their law if it means they are following their beliefs? And, is morality somehow connected to religion? How does this play into the concept of freedom of religion? By researching various political and philosophical thinkers, this project provides a theory for the answer to the pending questions of cultural and moral relativism.

11:00 – 11:15 a.m. Perspectives of Alfred: Evaluating historical interpretations of England's first monarch

CS ▪ 36

***Jonathan Dean, Dr. Alana Scott, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

The presentation analyzes and compares perspectives of Alfred based on the personal context of each author in an attempt to convey the importance of understanding the bias of historians from different time periods. Using a variety of sources such as Asser's ninth-century *Life of King Alfred*, sections of the *Anglo-Saxon Chronicle*, archaeological reports, and biographies of Alfred from the tenth through the twenty-first centuries, the presentation attempts to separate historical fact from historical fiction in presenting a case for the "real" King Alfred the Great. This project is supported by an Undergraduate Fellowship.

11:15 – 11:30 a.m. The problem of evil and eastern philosophy: An argument for applying the free will defense to natural evil

CS ▪ 37

***Andrew Keith, Dr. Christina Conroy, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

A major dilemma in the philosophy of religion will probably always be whether or not a God actually exists. Furthermore, as philosophers, we must ask 'if some deity does exist, what is He, She, or It like'? The problem of evil is one philosophical topic that is intended to logically prove the existence of a particular kind of God is an impossibility. In "The problem of evil and eastern philosophy: an argument for applying the free will defense to natural evil" the problem of evil, particularly the definition of evil is explored in order to form a more robust defense for the possible existence of God. This will include a new definition of evil based upon religious and moral philosophies from the East and West. Furthermore, this new definition is applied to the current "Free Will Defense" to explain how a broader scope of evil can be accounted for. The ultimate aim, is that one may understand what specifically evil is, how that affects the possibility of a God existing, and how that ought to affect the individual.

Concurrent Session – 302 ADUC

Moderators: Dr. Calvin Lindell

8:30 – 8:45 a.m. Creating raised gardens for children on a budget: A guide for community based programs

CS ▪ 38

****Stephanie J. Bauman, Dr. Joy L. Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Creating a raised garden for children can be a daunting task for small, community-based programs. In reality, a little bit of planning can result in a valuable experience. The goal of the Haldeman Community Center After School Program garden is to get the children outside and moving, connect them with nature, and help them begin thinking about their food and where it comes from. This presentation will address key steps to a successful gardening program for children, including determining the type of beds, identifying community partners, recruiting volunteers, and making plant selections. Suggested guidelines are drawn from both research and lessons learned from the Haldeman program. This project is supported through an MSU Undergraduate Research Fellowship.

8:45 - 9:00 a.m. Designing on a dime: Creating a virtual presence for non-profit organizations

CS ▪ 39

****Julieann Helton, Dr. Joy L. Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Art and design influence our everyday lives and with the availability of technology, much of this influence occurs via the World Wide Web. People respond to websites that are visually appealing, easy to navigate, and offer engaging information. This presentation will share lessons learned from a two-year project to create a virtual presence for the Haldeman Community Center in Rowan County, Kentucky. It offers one example of the many ways public institutions of higher learning can use their resources to support community initiatives, while allowing students to gain valuable real world experience through service learning. The Haldeman website is student designed and built, and allows the center to promote upcoming events, share oral histories, feature profiles of community leaders, and provide information for potential volunteers, all in a cost-effective manner without the assistance of a third-party. Tips for design, implementation, and community training will be addressed. This work was supported by an Undergraduate Research Fellowship.

9:00 – 9:15 a.m. Promoting health and wellness in Appalachian youth

CS ▪ 40

****Sydney J. Guffey, Dr. Joy L. Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Student instructors at the Haldeman Community Center After School Program in Rowan County strive to provide a positive learning environment for the diverse children enrolled, including those facing disabilities. This presentation will provide practical suggestions for removing the mental, physical, and emotional barriers that can prevent children from enjoying and deriving benefit from physical activities, drawing on both current research and the presenter's personal experience. An MSU Undergraduate Research Fellowship supported this research.

9:15 – 9:30 a.m. Art after hours: Appalachian art in the classroom

CS - 41

***Heather Holbrook, Dr. Joy Gritton, Mentor, Department of Art and Design,
Caudill College of Arts, Humanities, and Social Sciences**

This presentation will discuss how art activities can be used to build children's social literacy skills. The art component at the Haldeman after School Program in Eastern Kentucky is using the visual arts to explore the history and traditions of the community and region. The art projects focus on art from Appalachia and folk art, and incorporate ideas from music and theatre (two other programs offered in the After School Program). Though the children are enjoying a creative outlet, they are also learning valuable and necessary lessons for life. This approach is consistent with the Haldeman Center's mission, which is to provide children with a safe haven away from drugs and promote the educational, recreational and social well being of the community's residents. This research was funded with an Undergraduate Research Fellowship.

9:30 – 9:45 a.m. Empty bowls fundraiser for Rowan County Christmas

CS - 42

***Gabe Lewis, Seth J. Green, Mentor, Department of Art and Design, Caudill
College of Arts, Humanities, and Social Sciences**

An *Empty Bowls* fundraiser, that consisted of crafting hand-made bowls and selling chili, was organized and executed in November 2015. The total amount raised was \$2942 that benefited Rowan County Christmas to raise funds to purchase gifts for needy children. 250 bowls were crafted over the course of the fall semester using MSU's stoneware clay that was mixed here in the studio. These bowls were fired using high fire gas and wood kilns and glazed/finished with our formulated glazes and slips. In an effort to involve the student body and the community, volunteers were invited to come in and learn how to craft bowls during *Bowl-A-Thons*. Steps leading up to the event consisted of: contacting community partners, setting dates and specifics for the events, soliciting for food donations, carrying out bowl-making sessions (*Bowl-a-Thons*), organizing community awareness of the project through advertising in multiple media outlets, and assisting Rowan County Christmas board members and other MSU students in hosting the events. On November 18, 2015 we held our fundraiser at the Carl Perkins Center and sold raffle tickets for a large bowl created and donated by Seth Green, Assistant Professor of Art.

10:15 – 10:30 a.m. Break

**10:30 – 10:45 a.m. The care, documentation, and preservation of literary and artistic works
through the *Inscape* Art and Literary magazine**

CS - 43

***Marilyn Holmes, Elizabeth Mesa-Gaido, Mentor, Department of Art and Design,
Caudill College Arts, Humanities, and Social Sciences**

In order to preserve the history of Morehead State University's art and literary achievements, the present project focused on the proper care and handling of delicate archival documents in collaboration with the Department of Art & Design, the English Department and the Library Special Collections and Archives. This study sought to find the best possible method for preserving these publications in a contemporary digital format to make them available to the masses. This also served to create a working record of missing and or damaged editions of *Inscape* dating back to 1957. Along with documentation, the researchers uploaded to and maintained the online Scholar Works archive, where these documents would be made readily accessible through download. This research was funded with an Undergraduate Research Fellowship.

10:45 – 11:00 a.m. Arts programming and promotion

CS ▪ 44

****Kristin Busby, Jennifer Reis, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

The Undergraduate Fellowship in Arts Programming and Promotion focuses on the logistical planning, management and marketing of arts programming and services. Working within the arts programming hosted by the Claypool-Young Art Gallery, UR Fellow Kristin Busby was involved with the coordination and management of art events during the 2016 Spring and Summer schedule, including the organization of art submissions for the Bluegrass Biennial exhibition jurying process, and assisted in art handling, receiving, and installation with four exhibitions. Her work included hosting evening and weekend events. This fellowship is designed to prepare a student to begin a career in arts administration or to pursue a degree in arts administration or museum studies, or an MFA in studio art. This project is supported by the Undergraduate Fellowship Program, the Department of Art & Design, and the Caudill College of Arts, Humanities, and Social Sciences.

11:00 – 11:15 a.m. The art of exhibitions and collections management

CS ▪ 45

****Adam Davis, Jennifer Reis, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

The Undergraduate Fellowship in Exhibitions and Collections Management focuses on the logistical planning and administration of arts programming as well as collection management. Working within the arts programming hosted by the Claypool-Young Art Gallery, UR Fellow Adam Davis was involved with the coordination and management of art events during the 2015-16 academic year, including art handling, receiving, label creation, and installation with seven exhibitions. Outside of the gallery, he focused on collection management specifically with work on the University Art Collection Inventory Project, including photographic, narrative and numeric documentation of works in the collection. Additionally, he was involved with hosting evening and weekend events, as well as programming documentation for gallery promotion and assessment. This fellowship is designed to prepare a student to begin a career in arts administration or to pursue a degree in arts administration or museum studies, or an MFA in studio art. This project is supported by the Undergraduate Fellowship Program, the Department of Art & Design, and the Caudill College of Arts, Humanities, and Social Sciences.

11:15 – 11:30 a.m. Perspectives on guided improvisation: Solo percussion works, compositional techniques, and forms of improvisation in written works

CS ▪ 46

****Gloria Yehilevsky, Dr. Brian Mason, Mentor, School of Music, Theatre and Dance, Caudill College of Arts, Humanities, and Social Sciences***

Improvising music and playing classical repertoire tend to be viewed as opposites in the music world. In truth, the two complement each other, and can lend a significant insight into new compositional and performance techniques in today's modern art music world. This study has focused on solo percussion works which include elements of guided improvisation. There are various degrees of improvisation, and various ways of including it in a work. The term guided improvisation refers to a form of improvisation which gives the performer source material and guidelines, but the performer is still left with an amount of freedom which requires him/her to make decisions in every performance, every time he/she plays the piece. It is widely agreed that all musicians need to improvise: a possible bridge towards doing so is through the types of works studied. Each compositional technique leads to a different experience for the performer. Developing these skills places a musician's mind in a different capacity than does playing something that is notated specifically, and helps connect gaps in performing and creativity which are not easily filled otherwise. This research is supported by the George M. Luckey Honors Program and an Undergraduate Research Fellowship.

11:30 – 11:45 a.m. Experiments in sympathetic vibrations and percussion composition

CS - 47

****Nathan Connell, John Tyree, Dr. Brian Mason, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

Elements of sound production in a snare drum have been studied and manipulated over several centuries of the instrument's existence, resulting in new ways of playing, manufacturing, and tuning the instrument to create new and different sounds from a seemingly limited instrument. Taking a different approach to the subject, this research explores sound production away from the instrument. The aim of this study is to examine the sympathetic vibrations in the snare system of a snare drum, analyzing possible causes and elements that might affect how the vibration is produced. Experiments will be conducted using a single snare drum and a vibraphone, testing the frequencies at which sympathetic vibrations are produced. These experiments will involve the testing of variables that include drumhead tension, drum depth, room acoustics, distance between instruments, the material of the vibraphone, and material of the snares. Following this, compositional ideas will be collected and tested and the resulting data will then be applied as compositional elements in a solo work that demonstrates the findings. This research was funded with an Undergraduate Research Fellowship.

Concurrent Session –Riggle Room

Moderator: Dr. Roger McNeil & Dr. Ahmad Zargari

8:30 – 8:45 a.m. Isochronic brainwave modulator

CS - 48

****Aaron Hood, Dr. Ashraf Aly, Mentor, School of Engineering and Information Systems, College of Business and Technology***

With my Senior Capstone I set out to make available an IOS mobile application that hosted a library of Isochronic tones designed to entrain a person's neuroelectric responses to a rhythmic auditory stimulant. The brain of a patient that is presented with a rhythmic stimulus, responds by reproducing the rhythm in the form of electrical impulses. This effect is commonly called the Frequency Following Response (FFR). These entrained states are very useful because of how they directly relate to your level of attention and relaxation. Software Toolkit I intent to use is called Xcode Beta 7 applying the Swift 2.0 Programming Language for Button Controls and Audio Formatting.

8:45 - 9:00 a.m. A look at virtual reality game design

CS - 49

****Richard D. Shaver, Dr. Ashraf Aly, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Video game design is a growing industry and virtual reality headsets are a new technology that requires a fresh look at how games are being designed. With headsets being a new addition to the gaming industry, not much has yet been done for a game designer to determine which technology would be best for creating new VR games. A look at these headsets and the existing game design engines results in a choice of using the Unity game engine with the Oculus Rift headset. Using these components, a few games are designed that show the differences between standard video games and those that utilize VR headsets, both in how they are played as well as how they are created.

9:00 – 9:15 a.m. Name generation using data mining techniques

CS - 50

****Seth Creech, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Progress in the field of name generation has long been stagnant. Markov chains have been the generally settled upon solution to any kind of name generation needs. However, while the names generated using Markov chains are an improvement over previous methods, gibberish is still produced frequently. The field of data mining has several techniques that could possibly reduce the occurrence of the produced gibberish, and improve results overall. In addition, determination of a name's quality has largely been performed manually by a human. In this project we aim to automate this process with various comparison functions, as well as determine the comparison function's effectiveness.

9:15 – 9:30 a.m. A computer program that learns to play video games through experience

CS - 51

****Jonathon Byrd, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

A long-standing goal in the field of artificial intelligence is to create agents that can successfully learn control policies from high-dimensional sensory inputs. In general, humans have no difficulty with basic perception and can perform simple visuomotor tasks very early in development. Machine perception, however, is still an active field of research. Until recently, no systems had been developed that could successfully learn to complete tasks directly from raw visual input. In this project, we investigate several recent methods for doing that on an Atari emulator.

9:30 – 9:45 a.m. Development of delta robot as a didactic platform for training in the field of mechatronics

CS - 52

****Troy Stafford, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Technical training in the area of automation has always been an issue in both industry and education. Because of time constraints, high cost of the machines, and their vulnerability when operated by untrained personnel, training on automation is frequently very limited with little to no real experience. Real world laboratory equipment such as the Delta Robot, can be constructed with the exact specifications as the robots that are used in the industry. By having the robot completely university built and configured, other university students will be able to study the mechatronics of the robot with the aid of the developer university's technical support. By using simple micro-processing units the students are free to configure the Delta Robot and learn programming along with configuration and setup. Using Modbus/TCP students can log onto the laboratory robot at any time allowing for more students to learn how to operate the Delta Robot on their own time. This means less university cost in equipment training, fewer needed training machines, less class and instruction time, and allows for a larger number of students to be able to learn the operating procedures at a time. This project is supported with an MSU Undergraduate Research Fellowship.

9:45 – 10:00 a.m. Development of a user interface to communicate with virtual delta robot by Modbus/TCP protocol

CS - 53

+Armin Maraghehmoghaddam, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology

The limitations of expensive robotics equipment, safety issues through critical processes, and vulnerability of robots when operated by untrained personnel affect the output of training programs in robotic area. Training via actual robots requires great deal of sources for providing, implementation, and maintenance. As a result, educational institutes are facing crucial problems for providing enough platforms for individuals during robotic training programs. With actual robots, in addition, trainees are not free to test programs without worrying about breaking the machines. Applying physics engines, virtual laboratories can be used as real-time simulations for training. Implementing a virtual environment using physics engines enables trainees to run virtual robots with the real behavior of actual robots. This can reduce costs of training programs and help the trainees to simulate all possible scenarios. Using C# based user interface and Modbus/TCP protocol for communication, students are able to manipulate the virtual robot not only simple movements, but also programming sequences via scripting in the user interface environment. Considering all virtual robot aspects, trainees will have all the same capability they have on actual industrial robots in virtual environment.

10:00 – 10:15 a.m. Econometric analysis of efficiency ratios in U.S. retail industry

CS - 54

****Sergio Ribera Boigues, Dr. Nilesh Joshi, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Efficiency ratios vary widely across retailers and over time. Historically, a lot of analysis has been done in the retail sector, but the focus was solely on inventory. On the other hand, some researchers employed ratio analysis to analyze general procedures and failures prediction. We develop empirical models using financial data of thirty U.S retailers for the past 10 years to investigate the correlation of efficiency ratios and their impact on profitability of the retail sector. The key factors calculated and used in the analysis are net margin, return on assets, financial leverage, return on equity, return on invested capital, interest coverage, days sales outstanding, days inventory, payables period, cash conversion cycle, receivables turnover, inventory turnover, and assets turnover. The three metrics: return on equity (ROE), return on assets (ROA) and return on invested capital (ROIC) are used to assess the profitability of individual companies. Pearson correlation and multiple regression analysis are used to study the effect of efficiency ratios on the profitability of individual companies as well as overall profitability of the industry.

10:15 – 10:30 a.m. Break

10:30 – 10:45 a.m. Effect of working capital management on profitability of US manufacturing industry

CS - 55

****Cody Garcia, Dr. Nilesh Joshi, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Historically, a lot of research has been done on lean systems and just-in-time philosophies. But majority of these research efforts were within the realm of academia. It is imperative to examine if actual industry, particularly the manufacturing industry benefit from these developments. Ideally, the desired effect of implementing such philosophies should reflect in any firm's working capital management efficiency. In this research, we study working capital management trends in the US manufacturing industry during the last decade. The data is collected from financial statements of last ten years for a sample of ten large-cap manufacturing companies in the US. The key factors calculated and used in the analysis are days sales outstanding, days inventory outstanding, payables period, cash conversion cycle, receivables turnover, inventory turnover, fixed assets turnover, and asset turnover. The two metrics: return on assets (ROA) and the return on invested capital (ROIC) are used to assess the profitability of individual companies. Multiple regression analysis is used to examine the impact of working capital management efficiency as indicated by various efficiency ratios on the profitability of individual companies as well as overall profitability of the industry.

10:45 – 11:00 a.m. Virtual production line development

CS - 56

+Ruth Yadira Vidaña-Morales, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology

Automation is an area that is in need of constant update with the development of new technology. In order to keep up with these changes, constant training both in the class room as well as on the industrial environment are needed. For this reasons, institutions, schools and training facilities must do a better job at providing adequate training. There are several factors that have hindered good development and training, like the shortage of sensors, actuators and prototypes. Without these, the students are limited in their development of new processes and ideas that could further development in the industrial sector. In response to the need for better training and development in automation and control systems, a virtual laboratory of a Mixing Tank Process have been proposed with real industries scenarios. The objective is to replicate actuators and sensors that all operate with the same characteristics of their physical components.

11:00 – 11:15 a.m. Development of delta robot virtually train personnel

CS - 57

****David Savage, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Practical training in the area of automation is an issue in both industry and education. Because of time constraints, high cost of the machines, machine vulnerability, and preventative maintenance, real world training is often limited. With new advances in software, and hardware capabilities of computers training on actual robots can become a thing of the past. The virtualization of robots, in this particular case the Delta robot, students and employees can get the equivalent of hands on operation with these robots. This new virtual training can give these individuals all the proper training much cheaper and the training process can become much faster. This project is supported with an MSU Undergraduate Research Fellowship.

11:15 – 11:30 a.m. Integration of software into a laptop-tablet to create a teach-pendant for Delta Robot

CS - 58

****Adolfo Enrique Samudio Cano, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Thanks to the help of students, faculty, and other members of the department, Morehead State University's School of Engineering and Information Systems now has a Delta Robot as part of their robotics training team. The Delta Robot was built completely by students and faculty as part of a project. Technical training in the area of automation has always been an issue because of time constraints, high cost of the machines, and the machines vulnerability when operated by untrained personnel. Training on automation is frequently a very limited endeavor. Now that the robot is in the last stages of building and configuration, students will be able to study mechatronics of the robot as well as programming and design. The teach-pendant, commonly known as the robots control, is a big part of the robot since it's the bridge between the programming and the execution of movement. To lower costs Dr. Ortega and his team came up with a plan of designing and creating a program in which a tablet-laptop computer can be used as a teach pendant. With the use of CAD software's a case will be design and 3D printed in which the tablet-laptop will be encased to look as a TP. This means less university cost in equipment, training, less class and instruction time, and allows for a larger number of students to be able to learn the operating procedures at a time.

11:30 – 11:45 a.m. OPC communication in a mixed virtual-physical mechatronic laboratory

CS - 59

****J.L. Garcia-Malacara, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

This work deals with the development of a communication link using the industrial standard Open Platform Communications (OPC). OPC is widely used in manufacturing automation to communicate process control hardware like industrial robots, machines and PLCs with, human machine interfaces (HMIs) like control panels and SCADA systems. The development presented is used as part of a project to create a virtual training laboratory with the purpose of training personnel and students in the use of industrial hardware, such as robots, PLCs, conveyors, etc. A virtual training laboratory will allow training in schools and industry where otherwise would be difficult due to the safety concerns and high cost of the machines. By using OPC, sensor and actuator signals in the virtual laboratory are send to and from a real PLC, where a PLC ladder program is used to control the process modeled in virtually. Furthermore, a solution created in the virtual laboratory can be migrated to a real automatic process with minimum effort given the use of industrial standards.

11:45 – 12:00 p.m. Break

12:00 – 12:15 p.m. Power factor correction using switched capacitor bank with a genetic algorithm

CS - 60

****Jaime Fraustro, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

This work is based on novel power factor improvement using switched capacitor bank with a genetic algorithm where all bank's possible solutions are analyzed to find an optimal state. A Matlab Graphic User Interface is implemented in order to simulate circuit load, computed power factor and the correction capacitor value. Subsequently, a search among the possible solutions is made by a genetic algorithm. Since genetic algorithms are population-based optimization algorithms that use biology-inspired mechanisms in order to refine a set of solutions iteratively, a better use of resources is obtained. The switching of capacitor bank is through digital output of the Arduino board.

12:15 – 12:30 p.m. Development of a user interface to communicate with real delta robot by Modbus/TCP protocol

CS - 61

****Miguel Trujillo, Dr. Jorge Alberto Ortega-Moody, Mentor, School of Engineering and Information Systems, College of Business and Technology***

The automation is an area that is constantly updated to incorporate new technological development. These changes demand a constant training from academia to the industrial sector. One of the limitation in educational institutions (educational institutions and training centers) is the lack of infrastructure to allow the student to perform test in an environment industry; because the robotics equipment is not enough, the cost for training with real robots is expensive and inefficient, the training robots requires maintenance constantly provided for external companies, also we should add the industrial platform to operate the real machines or robots. Delta robot, can be constructed with the exact specification, also the in interface between user – robot is development to operated delta robot as environment industrial. This can allow the student manipulate the delta robot as the industrial robot. Using C# to make the interface, the students are able to program sequences as in the industrial platform.

12:30 – 12:45 p.m. Impact of schedule delays and methods of analysis

CS - 62

****Steve R. Easterling, Dr. Sanjeev Adhikari, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Not all construction projects finish on time, and within budget. Delays and changes occur during construction that impact the schedule, consequently impacting the project and its completion date. Although not all occasions that differ from the planned schedule of work will result in a schedule impact, a schedule impact analysis is a process of quantifying and apportioning the effect of delay or change on a project schedule. A review of common schedule impact analysis techniques, along with examples, provide the audience with an appreciation for properly implemented analyses that analyze the effect of a delay or change, at the time of the event, using the most relevant schedule information this presentation helps emphasize how to identify, and classify potential schedule impacts, as well as how to determine what, if any effect they have on the project completion date. The purpose of this presentation is to present the results of some of these impacts and recommend which schedule impact analysis technique should be utilized. This research was supported by MSU Undergraduate Research Fellowship.

12:45 – 1:00 p.m. Spatially-resolved X-ray spectroscopy of the Galactic supernova remnant 3C 397

CS - 63

****Andrew C. Greene, Dr. Thomas Pannuti, Mentor, Department of Earth and Space Science, College of Science***

We present a spatially-resolved spectroscopic analysis of the Galactic supernova remnant (SNR) 3C 397 based on a pointed observation made of this source with the *Chandra* X-ray Observatory. 3C 397 appears to belong to the class of objects known as mixed-morphology SNRs: these sources feature a shell-like morphology in the radio with a contrasting center-filled morphology in the X-ray. The high angular resolution capabilities of *Chandra* (approximately 1 arcsecond at 1 keV) have facilitated for the first time a detailed study in variations of the spectral properties (such as temperature and chemical abundances) across the entire angular extent of 3C 397. Our initial analysis indeed finds ranges in the abundances (relative to solar) of elements such as silicon and sulfur, suggesting that the X-ray emitting plasma is dominated by stellar ejecta rather than swept-up interstellar material.

1:00 – 1:15 p.m.

Night sky brightness measurements in Morehead KY: A continuing effort to document light pollution

CS - 64

****Damon King, Dr. Jennifer Birriel, Mentor, Department of Mathematics and Physics, College of Science***

Since the invention of the tungsten light bulb at the turn of the 20th century, cities have seen an ongoing proliferation of artificial light at night (LAN). However, excess LAN present problems for both nocturnal and diurnal animals: it confuses their wake-sleep cycles and alters hunting, feeding, mating, and migration behaviors. There is mounting evidence that humans are adversely affected, with increased risks for certain types of cancers and sleep disorders. We used Sky Quality Light Meters to measure the night brightness in the Morehead KY area. We perform a simple statistical analysis of data from 2016 measurements determining the frequency of distribution of night sky brightness readings. We also computed the mean value and standard deviation of night sky brightness. We compare our values with two different data sets from previous students collected in 2014 and in 2009. We perform a simple hypothesis test to determine if the night sky brightness has changed since 2009. Additionally, we two used apps that enable your smart phone to measure night sky brightness and compared them with the results obtained by the Sky Quality Meter to test their validity. This research was supported by the MSU Undergraduate Research Fellowship.

Concurrent Session – 312 ADUC

Moderator: Dr. Thomas Pannuti

8:30 – 8:45 a.m.

Genome annotation of mycobacteriophage Phranny

CS ▪ 65

***JaLynn Marie Copeland, Dr. David K. Peyton, Mentor, Department of Biology and Chemistry, College of Science**

The Science Education Alliance Phage Hunters Advancing Genomics and Evolutionary Science (SEA-PHAGES) project is a program funded by the Howard Hughes Medical Institute (HHMI) and began at the University of Pittsburgh under the direction of Dr. Graham Hatfull. The program now includes campuses across the United States, including Morehead State University. Student participants in the program are trained to isolate mycobacteriophage from environmental samples, to cultivate pure populations of the phage in a bacterial host, and then to characterize the phage by electron microscopy, gel electrophoresis, and ultimately genome sequencing. The mycobacteriophage Phranny was isolated from a soil sample taken from the Morehead State campus. The genome from this pure population of mycobacteriophage was sequenced in its entirety. Preliminary results of the ongoing genome annotation are given. MSU acknowledges partial support for this project from an Institutional Development Award (IDeA) from National Institute of General Medical Sciences, National Institutes of Health Grant 2P20GM103436.

8:45 - 9:00 a.m.

A preliminary herbaceous plant species floristic inventory of Carter Caves State Resort Park, Carter County, KY

CS ▪ 66

***Mary D. Webb, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science**

Carter Caves State Resort Park, located in north-central Carter County and established in 1946, covers over 2,000 acres and is rich in geological features. The geology of the park is dominated by sandstone and limestone and includes caves, sinkholes, natural bridges, box canyons, deep gorges, steep-sided cliffs, and rockhouses. An ongoing inventory of the herbaceous angiosperms in the park, including specimens from an assessment of the Morehead State University Herbarium and those collected in the 2013, 2014, and 2015 spring and fall semesters, has produced 447 specimens comprising 304 different species. The plant families best represented by this preliminary inventory are Asteraceae (aster family) and Poaceae (grass family) with 49 and 32 species, respectively. *Castilleja coccinea* (L.) Spreng. (Indian Paintbrush) and *Thaspium pinnatifidum* (Buckley) A. Gray (Cutleaf Meadow Parsnip), listed as endangered and threatened, respectively, by the Kentucky State Nature Preserves Commission (KSNPC) in Kentucky, were found in the park. In the future, additional collections could be made from areas and habitats not yet visited within the park in order to further document the herbaceous flora of this biologically diverse state park. This project was supported by an MSU Undergraduate Research Fellowship.

9:00 – 9:15 a.m.

Dendroclimatological analysis of dominate tree species on an Eagle Lake slope

CS ▪ 67

***Benjamin Rasp, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science**

Trees respond to their surroundings and thus are affected by climatic variation. Dendroclimatology is a science that examines the relationship between climate and tree growth. The primary objective of this study was to determine the correlations between climatic variables and the standardized annual ring widths of *Oxydendrum arboreum* (sourwood), *Nyssa sylvatica* (sour gum), *Quercus alba* (white oak), *Quercus velutina* (black oak), *Quercus coccinea* (scarlet oak), and *Acer rubrum* (red maple). Another objective of this study was to see how the species response to climate varied from low to high elevation. The study sites were three 1000 m² plots that are near Evans Branch upstream of Eagle Lake and ranging from approximately 900 to 1090 ft. in elevation. Using COFECHA, a quality control program that checks the accuracy of dated series, the program was used to correct most of the problem segments. The annual standardized ring widths of these trees will be compared to annual and monthly data for Palmer Drought Severity Index (PDSI), precipitation, and temperature. This research was supported by the MSU Honors Program Undergraduate Research Fellowship.

9:15 – 9:30 a.m. Vascularflora inventory and species richness prediction for Eagle Lake watershed, Morehead, KY

CS = 68

***Breanna G. Knicely, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science**

An ongoing inventory of vascular plant species was conducted throughout multiple areas of the Eagle Lake watershed during fall 2014 – spring 2016. Eagle Lake's watershed consists of 198 hectares. One hundred seventy specimens representing 51 families, 93 genera, and 128 species were documented from the watershed. The families with the greatest number of species represented in the study were Asteraceae (with 17 species represented), Cyperaceae (9), and Fagaceae (8). A threatened species in Kentucky, *Stenanthium gramineum*, featherbells, was found in two separate populations in the watershed. Featherbells has been recorded in only 20 counties throughout Kentucky. A rare species in Kentucky, *Viola tripartita*, threepart violet, was also found in two separate populations in the watershed. This species has only been recorded in 14 counties throughout Kentucky. Based on a species-area curve developed by reviewing previously published studies, it is predicted there are 351 species in the watershed of Eagle Lake, thus indicating there are 223 species left to be documented. Future research plans include supplementing data by going through the Morehead State University herbarium in order to discover previously collected specimens from Eagle Lake as well as continuing field work throughout 2016.

9:30 – 9:45 a.m. Structure and composition of epiphyte communities on eastern hemlock in Spaws Creek Gorge, KY

CS = 69

***Arlo Barnette, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science**

The eastern hemlock (*Tsuga canadensis*) is a conifer at serious risk in the Appalachian region due to the presence of the hemlock woolly adelgid (*Adelges tsugae*), a non-native insect deadly to the tree. This study aims to determine the type and distribution of epiphytes on the trunk and branches of the eastern hemlock, in an effort to expand knowledge concerning the natural history of the species before canopy-sized individuals disappear from the region. The ongoing study was conducted at Spaws Creek gorge in Menifee County, Kentucky. Lichens and bryophytes were collected at the base of a roughly 200-year old specimen and at 3m intervals up the trunk on all four cardinal compass directions, and from the tops of branches at these same levels in 10x30cm quadrats spaced at 60cm intervals along the full length of each branch. Abiotic and biotic variables were recorded for each quadrat. All epiphytes were then collected from the quadrats, identified to species, and percent cover estimated for each. This information was used to extrapolate values for species richness and distribution throughout the tree. This research was supported by an MSU Undergraduate Research Fellowship.

9:45 – 10:00 a.m. The Morehead State University Fast Pulsar Data Acquisition System

CS = 70

+Michael S. Robbins, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science

The Morehead State University 21 Meter Space Tracking Antenna (STA) is a unique research facility for an undergraduate university in its capability of conducting formal research projects in astrophysics by undergraduate and graduate students. Recently, the STA commissioned the Fast Pulsar Data Acquisition System, a hardware system dedicated to observations of pulsars, which are fast rotating and highly magnetized neutron stars that emit beams of electromagnetic radiation. The chief application of this system is to measure the dispersion measures (DM) to these sources: the DM is the observed delay in the arrival of radiation from pulsars at different radio wavelengths, and precision measurements of the DM toward pulsars helps to probe such important properties of the interstellar medium as magnetic field strengths and number densities of electrons. Currently, research is being done to refine the UHF system on the STA to more easily detect the lower frequencies emitted from pulsars: using the UHF system in combination with the L-Band feed on the STA allows the measurements of DMs from pulsars at longer radio wavelengths. Long-term goals for the Fast Pulsar Data Acquisition System include measuring distances to pulsars and integrating this system into classes as a demonstration tool.

10:00 – 10:15 a.m. An original Chandra data reduction script "Do_It_All" applied to an observation of the nearby spiral galaxy IC 342

CS - 71

****Bradley J. Mahaffey, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science***

The CIAO (Chandra Interactive Analysis of Observations) software package is a suite of data reduction and analysis tools intended for the analysis of observations made by the Chandra X-ray Observatory. We have developed a Linux shell script called "Do_It_All" which is CIAO-based and runs all of the data reduction and analysis tasks required to process a Chandra observation. The standard data reduction steps run by "Do_It_All" include the chandra_repro script that applies basic calibration along with an interactive tool for generating light curves and filtering against background flares. The script also has capabilities of detecting discrete X-ray sources using the CIAO tool wavdetect and computing the probabilities of time variability as well as the flux densities and luminosities of these sources using an assumed emission model and an assumed distance to the source. We present an initial application of this script to a pointed Chandra observation of the nearby spiral galaxy IC 342: this galaxy has been the subject of previous radio and optical searches for supernova remnants but a complementary systematic X-ray search has yet to be conducted.

10:15 – 10:30 a.m. *Break*

10:30 – 10:45 a.m. Long-term observations of the blazar BL Lac with the Swift Observatory

CS - 72

****Aaron M. Lackey-Stewart, Dr. Dirk Grupe, and Dr. Thomas G. Pannuti, Mentors, Department of Earth and Space Science, College of Science***

We will present X-ray and UV/optical light curves of the prototypical low-peak blazar BL Lac, which over the past decade has been the subject of monitoring observations by Swift. The study presented here partly focuses on x-ray analysis from observations done by the Swift X-ray Telescope (XRT). In particular we will focus on the high-cadence monitoring campaign that we have conducted since October 2012. In conjunction to this an analysis of the UV data is presented from Swift's UVOT in order to construct long term X-ray and UV/Optical light curves of the source to better understand the mechanism(s) behind BL Lacs's behavior. In the past, the UV seemed to be closely coupled to the X-ray variability. However, since about May 2013 we noticed that the UV emission has become brighter while the flux in X-rays decreased. Lastly variability analysis of the light curves is presented. This work has been supported by an undergraduate research fellowship.

10:45 – 11:00 a.m. Measuring the spin-down rate of the Crab pulsar with the Swift Observatory

CS - 73

****Andrew J. Hughes, Dr. Thomas G. Pannuti and Dr. Dirk Grupe, Mentors, Department of Earth and Space Science, College of Science***

The Crab Pulsar has been extensively studied all across the spectrum. It has been accurately timed in the radio, but not a lot of timing analysis has been done at higher energies. This project used the method of epoch-folding on data from Swift to calculate the frequency of the Crab. A spin-down rate of $-3.701 \text{ E-10 Hz s}^{-1}$ was calculated, very close to the current value of $-3.69277 \text{ E-10 Hz s}^{-1}$.

11:00 – 11:15 a.m. Sedimentology and stratigraphy of Holocene Terrace Deposits in Rowan County, Kentucky

CS-74

****Jonathan S. Caudill, Dr. Jen O'Keefe, Mentor, Department of Earth and Space Science, College of Science***

Exposures of sediment in the banks of many streams in Rowan County at first glance appear to be typical successions of fluvial sediments from second and third order streams. Upon closer examination, blue-grey fossiliferous silty clays, noted on the original maps of the Morehead and adjacent Quadrangles become apparent. These plant-bearing horizons have been found to range in age from the end of the Medieval Warm Period (ca. 1380) through the onset of modern farming practices (ca. 1970). Each exposure of the 'Boudreaux Bend Beds' is unique. Other work, concentrating on paleobotanical remains, has shown records of over 600 years of ecological change. This project examines changes to depositional style and sedimentation coeval with ecosystem change.

11:15 – 11:30 a.m. Palynology of the 'Boudreaux Bend Beds' in Rowan County, KY

CS-75

****Sharon Brooke, Morgan Black, Dr. Jen O'Keefe, Mentor, Department of Earth and Space Science, College of Science***

The 'Boudreaux Bend Beds' were re-located during summer 2014 and consist of blue-grey clay and silt exposed in the banks of regional streams. The beds range in age from the end of the Medieval Warm Period (ca. 1380 AD), through the Little Ice Age to the onset of modern farming practices (ca. 1970). All of the beds contain abundant pollen and spores, which can be used to determine prior ecosystem composition. Column samples were collected through multiple exposures of the beds and were processed for palynology using a modification of the Schols et al enzymatic technique. The pollen and spores recovered indicate deposition occurred during a cooler climate than is present today and that the original watershed likely contained a birch-hemlock-oak woodland with a fern-rich understory. Dung fungi abundances indicate the presence of megaherbivores, such as bison and cattle. Ponded to lacustrine settings contain diatoms in addition to freshwater algae and protistan remains, and indicate the presence of natural and mill ponds at different points in time. Charcoal was an abundant component of some horizons and indicates that wildfires were an important driver of ecosystem diversity. This senior thesis is supported by a KY-NSF EPSCoR RSP grant to O'Keefe.

11:30 – 11:45 a.m. Fungi in wetland environments: Occurrence on and alteration of leaves and wood from the 'Boudreaux Bend Beds'

CS-76

****Morgan Black, Sharon Brooke, Dr. Jen O'Keefe, Mentor, Department of Earth and Space Science, College of Science***

The 'Boudreaux Bend Beds' are a series of blue-grey to dark brown silty clay deposits exposed in the banks of numerous creeks in the Morehead and adjacent quadrangles of Kentucky. The beds rest conformably on imbricated coarse pebble conglomerates and are overlain by leached soil horizons. Botanical remains were extracted from sediments using modified sieving with sodium hexametaphosphate. The beds contain a diverse flora, including leaves, seeds, fungi, wood, and charcoal. Both leaves and wood support a diverse fungal community, with forms known to represent both parasites and saprophytes. Epiphyllous fungal forms similar to those observed on leaves from the Clarkia beds (Miocene) and the Claiborne Group (middle Eocene) are present. Leaves generally display intense lemon-yellow fluorescence in the absence of fungi; where fungi are present, fluorescence is reduced. Wood samples are generally well preserved, although gelification has begun to occur. Fungi in wood occur as hyphae and as spores and sclerotia. These forms are similar to those observed in Miocene coals and modern decaying wood. Wood fluorescence is variable, but generally yellow and, like the leaves, is less intense where the wood has been impacted by fungi. This project is supported by a KY-NSF EPSCoR RSP grant to O'Keefe.

11:45 – 12:00 p.m. Break

12:00 – 12:15 p.m. Contrasting attitudes regarding healthy living between MSU students from eastern Kentucky and those outside eastern Kentucky

CS = 77

****Saralyn Miller, Dr. Dayna Seelig, Mentor, Department of Kinesiology, Health, and Imaging Sciences, College of Science***

It is a commonly accepted fact that eastern Kentucky is part of one of the unhealthiest regions in the United States. This year we set out to begin to understand why this is so. Is it because people do not have the desire to be healthy? Do they not know what it means to be healthy? Or do they lack the resources required to do so? These are questions addressed in the university-wide survey we sent out in late February. Questions assessed how students view their own personal health, what factors prevent them from living a healthier lifestyle, and their levels of motivation to pursue a healthy lifestyle in the future. By examining and comparing results from students inside and outside the 22 area service region of eastern Kentucky, we will be able to pinpoint differences that will help identify why this region struggles in maintaining overall health.

12:15 – 12:30 p.m. Using trend analysis to predict future cost

CS = 78

****Clay Wilson, Dr. Mike Dobranski, Mentor, Department of Mathematics and Physics, College of Science***

The project's goal is to analyze energy usage data in order to create a model to predict future energy usage. The data set was provided and is past monthly costs of propane usage and electrical usage for the Pine Mountain School for the last 9 years. The outcome for this project is a model that predicts long term savings for different types of upgrades. The types of upgrades considered are window repairs and additional insulation.

12:30 – 12:45 p.m. Baseball by the numbers: A mathematical look at offensive production

CS = 79

****Gregory Bryan, Dr. Christopher Schreoder, Mentor, Department of Mathematics and Physics, College of Science***

By the end of a season of baseball, there are hundreds if not thousands of numbers and statistics to look at and analyze. When looking at batters, people often associate home runs and RBIs with the signs of a good run producer. However, one can determine the true worth of a hitter by looking at a player's true number of runs created throughout a season. By using this statistic in conjunction with the strength of pitching faced by a hitter, as well as park factors associated with the player's home ball park, we hope to truly determine the effectiveness of the top hitters from each Major League team. This research was funded with an Undergraduate Research Fellowship.

12:45 – 1:00 p.m. Do lab hours correspond to better grades on tests for developmental math students?

CS = 80

****Charles Kiser, Dr. Christopher Schroeder, Mentor, Department of Mathematics and Physics, College of Science***

The math tutoring lab is used by many students from a variety of classes throughout the year. The purpose of this study is to determine what, if any, effect the use of the resources in the math lab has on the performance of students in the developmental math classes. We will look at how many hours students study in the lab per week and compare that to their test scores.

Concurrent Session – Eagle Meeting Room

Moderator: Dr. William Green

Special Topic 1: Canadian Aboriginal Life, Economic Development, and Environmental Impacts

8:30 – 8:45 a.m. Missing and murdered aboriginal women

CS = 81

****Kennedy Womack, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The plight of indigenous in Canada is a human rights crisis. My research addresses the question: why are the rates of violence against indigenous women, four times higher than for non-indigenous women, and what policies can be adopted to address this violence. My research identifies three explanations: women are devalued in Aboriginal communities, government policies have torn apart indigenous families leaving indigenous women vulnerable to attack, and police forces have failed to take action to protect these women. The Government of Canada has not responded to the reports by the Royal Canadian Mounted Police, Amnesty International, and the UN Committee for the Elimination of Discrimination Against Women. The task awaits Justin Trudeau's newly-elected Liberal government. This research was supported by an MSU Canadian Studies Scholarship.

8:45 – 9:00 a.m. Economic growth and environmental impacts on aboriginal communities

CS = 82

****Danielle Weik, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

Aboriginal territories are home to a vast store of natural resources which the previous Conservative government has exploited to promote economic growth. My research addresses the environmental impacts on Aboriginal communities: how economic growth would contribute to diminished food supplies, to polluted waters, and to climate change. Then I examine what can be done to address these environmental impacts and improve the quality of Aboriginal communities. I suggest that the Justin Trudeau's new Liberal government, committed to addressing the consequences of climate change, could learn from other Arctic nations --Iceland, Norway, Sweden, and Finland -- and pursue sustainable alternatives and spend more on renewable energy resources. This research was supported by an MSU Canadian Studies Scholarship.

9:00 – 9:15 a.m. Aboriginal land claims and economic development

CS = 83

****Breanna Miller, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The Aboriginal peoples have been systematically oppressed for centuries. My research focuses on the conflict between their land claims and the government's commitment to the economic development of natural resources on Aboriginal lands. I trace the this conflict to the Royal Proclamation of 1763 and Indian Act of 1876 which created a culture of oppression and discrimination, but I focus on the 2014 Canadian Supreme Court decision in *Tsilhqot'in Nation v. British Columbia* which strengthened Aboriginal land rights. I argue that Justin Trudeau's new Liberal government needs to comply with the Supreme Court's decision and endorse the U.N. Declaration of the Rights of Indigenous People which could restructure of the government's relationship with its indigenous peoples. This research was supported by an MSU Canadian Studies Scholarship.

9:15 – 9:30 a.m. The plight of indigenous peoples in Canada

CS = 84

****Chad Mysonhimer, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The Aboriginal people of Canada are confronted by three major issues which my research examines: the infrastructure of their communities which is defined by unpaved roads and antiquated water and sewer systems, the poor quality of their education which helps explain the high unemployment, poverty, and homeless rates, and the need for reparations by the Government of Canada which will address these issues, not responded to the ninety-four recommendations of the Truth and Reconciliation Commission, and not adopted the United Nations Declaration of Rights of Indigenous Peoples. This research was supported by an MSU Canadian Studies Scholarship.

9:30 – 9:45 a.m. Set in stone: Inuit art, Canadian culture, and the ethnographic present

CS = 85

+Nathanael Green, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology

Inuit stone carving and print making are produced for a southern market, but have little to do with the traditional culture of a nomadic hunting and gathering way of life. This art depicts a vanished way of life that may be compared by analogy to the ethnographic present: an anthropological term that refers to the convention of ignoring ongoing cultural changes in order to present a stable culture. My research uses the concept of the ethnographic present to describe Canadian cultural attitudes towards Aboriginals, to examine the ways Inuit art has perpetuated the belief in a stable culture, and to explore the role of these beliefs in shaping Canadian culture and the Inuit artists whose work challenges these assumptions. This research was supported by an MSU Canadian Studies Scholarship.

10:15 – 10:30 a.m. Break

Special Topic 2: Canadian Economic, Environmental, and Human Rights

10:30 – 10:45 a.m. A sustainable environment for Canada's oceans and waterways

CS = 86

****Sarah Woodall, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

Canada's vast coastline is defined by the Atlantic, Arctic, and Pacific Oceans, by the St. Lawrence River and the Great Lakes, and by Hudson Bay. My research examines the protection of Canada's coastline for sustainable Aboriginal, recreational and commercial fishing as a political challenge for the Canadian government, because Canadians depend upon their oceans and waterways to earn a stable income and maintain their way of life. My research focused on the political conflicts which occurred with the clash of ocean protection and economic interests during the former Conservative government and which await action by Justin Trudeau's new Liberal government, including aboriginal fisheries, crab and lobster fishing, and oil and gas exploration in Canadian waters. This research was supported by an MSU Canadian Studies Scholarship.

10:45 – 11:00 a.m. Canada, human rights in Vietnam, and the trans-pacific partnership

CS = 87

****Brooke Blair, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The Communist Party of Vietnam has ruled the country since 1975. Now faces growing public discontent over its lack of basic freedoms. My research takes a Canadian perspective on Vietnam's human rights abuses to argue that the hearing held by the House of Commons Subcommittee on International Human Rights provided a forum for media critics of the Vietnam government who have questioned its official policy, exposed political corruption, and called for a democratic alternative to one party rule and who want the Canadian government's participation in the Trans-Pacific Partnership trade agreement negotiations to address Vietnam's human rights abuses which include subjecting writers and religious leaders to police intimidation, harassment, and arrest and imprisonment without trial. This research was supported by an MSU Canadian Studies Scholarship.

11:00 – 11:15 a.m. The anti-terrorism act of 2015: Civil liberties and national security in conflict

CS = 88

****Jenna Nichols, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The Canadian War Memorial and Parliament were the site of deadly shootings in October 2014. Shortly thereafter, the Canadian government enacted the Anti-Terrorism Act which authorized Canadian government agencies to more easily share information about people and expanded the authority of the Canadian Security Intelligence Service. My research analyzes the Act's national security provisions, its meaning for Canadian citizens, and its critics who argue that it violates the Canadian Charter of Rights and Freedoms which guarantees freedom of speech and prohibits unreasonable searches. Whether the Act violates the Charter will depend upon the outcome of a case brought by the Canadian Civil Liberties Union and the Canadian Journalists for Free Expression. This research was supported by an MSU Canadian Studies Scholarship.

11:15 – 11:30 a.m. North American economic integration: A Canadian perspective

CS = 89

****Henry Quillen, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

North American economic integration has been a slow process which began with the U.S.-Canadian Automotive Products Trade Agreement in 1965. The Free Trade Agreement twenty years later further reduced trade barriers between the two countries and in 1993 the North American Free Trade Agreement (NAFTA) extended the free trade zone to Mexico. My research takes a Canadian perspective, provided by the House of Commons Standing Committee on Foreign Affairs and International Development, to argue that NAFTA has been success, but trilateral cooperation has been inhibited by post-September 11 security concerns, the Keystone XL pipeline, and visa requirement for Mexicans visiting Canada. At the same time, the Trans-Pacific Partnership holds the promise of breathing new life into NAFTA. This research was supported by an MSU Canadian Studies Scholarship.

11:30 – 11:45 p.m. CETA: The unfinished Canadian European trade agreement

CS = 90

****Ryan Yoder, Dr. William Green, Mentor, Public Management and Government, College of Business and Technology***

The negotiation of the Comprehensive Economic Trade Agreement (CETA) between Canada and the European Union began in 2010. My research addresses the difficulties of negotiating the agreement and the reasons for delay in reaching an agreement. I found that the negotiation process, which took twice as long as expected, was due, in part, to disputes over the terms of the agreement and the involvement of the Canadian provinces and the European Union's member states. The final agreement was signed in September 2014, but its process of ratification is unclear. One issue is whether CETA's ratification is a European Union decision or whether it must be approved by all twenty-eight EU member states. This research was supported by an MSU Canadian Studies Scholarship.

Poster Session

1:15 – 3:00 p.m.

Crager Room

P - 1

Finding character in our collections: A comparison of English and Spanish literature

Crager

****Dakoda Trenary, Karla Aleman, Mentor, Camden-Carroll Library, Caudill College of Arts, Humanities, and Social Sciences***

Central to a library's mission is the development and management of its collections, but learning a collection's strengths and weaknesses is often a difficult and time consuming task. In order to better connect patrons to the Library's resources, an MSU Honors Program student partnered with one librarian at Morehead State University to begin an in-depth, item-level collection assessment of the Library's literature and language collections. The student worked under the direction of the librarian to help collect data and spot trends in our collections. Specifically, age, condition, and publication information was collected and juxtaposed between the English and Spanish literature sections. The following is a poster presentation from the perspective of the student on the discoveries made about our school and library and the secrets that can be gleaned from inside of the books they are home to.

P - 2

The Haldeman Community Center After School Program: Connecting past with present through children's music

Crager

****Elizabeth A. Dotson, Charlie Day, Jasmine Wheeler, Dr. Joy L. Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Throughout history, children have grown up listening to and performing music, from folk music on the front porch to radio and live performances. Songs pass from generation to generation and everyone has songs they remember from their youth. The Haldeman Community Center After School Program offers music one day a week as part of their enrichment activities. MSU student instructors experiment with a variety of instruments and music education strategies (such as using story characters to learn rhythm) in order to build foundational skills and expand the children's musical experiences. Currently, they are working to expose the children to Haldeman's rich heritage of music by collecting and sharing oral histories, teaching songs popular in the past, and having the children perform with senior musicians. In this way, music serves to create dialogue, appreciation, and understanding between the generations. This project is supported through an MSU Undergraduate Research Fellowship.

P - 3

Inscape, a collaborative, inter-disciplinary, student-centered journal: Six decades of publishing creative productions at MSU

Crager

****Simon Maness, Elizabeth Mesa-Gaido, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Since the inception of the publication *Inscape* in the year 1957, the magazine has underwent many progressions and changes over the last fifty-nine years. The 60th anniversary of *Inscape* is approaching in 2017, and in honor of such an occasion, a complete digital archive of every issue became a vision and a goal for this project. The primary emphasis of this project is to trace the history of *Inscape*, its origins and the meaning of its titular name, analyze the designs, media, art and publishing trends over the vast timeline of *Inscape*, document the writers, editors, artists and all other individuals, students and faculty alike, who contributed greatly to the life of this magazine, and finally to show MSU's continued interest in investing in the creativity and the creative productions of the students. This research was funded by the Undergraduate Fellowship Program.

P - 4

A lifetime of healthy living: Promoting wellness among youth in Appalachia's diverse communities

Crager

***Kyle M. Smith, Dr. Joy L. Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

Childhood obesity rates in Kentucky, including Rowan County, are much higher than the national average, with the Centers for Disease Control reporting that nearly 36% of children are obese. Childhood obesity leads to numerous chronic health problems, including hypertension, Type 2 diabetes, and high cholesterol. Remaining obese into adulthood leads to further health decline and increases the likelihood of lifelong health problems. Nutrition and physical activity are essential to the prevention of chronic health problems, but creating shared perceptions of healthy lifestyles remains at the forefront of the nation's healthcare challenges. Change is clearly necessary, but how can this change be respectful of diversity and yet promote common understandings of the factors that impact personal wellness? This project explores the potential for after school health and physical education designed to improve awareness and practice of healthy life style choices among the region's youth. This project is supported through an MSU Undergraduate Research Fellowship.

P - 5

Glazing station building and development

Crager

***Nicholas Hunt, Seth J. Green, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

Over the span of two semesters, I participated in a project to improve the organization and efficiency of the glazing area in the ceramics studio at Morehead State University. This project consisted of building customized tables and shelves and designing labels to clearly identify the glazes. Under Mr. Green's guidance, I built five tables that were positioned around the studio with customized holes cut out of the tops to hold the studio glaze buckets. The tables were hand-built, sanded, and then painted to ensure their longevity in a rigorous studio environment. I also built two separate shelving units to hold other materials for the classes such as extra tools, smaller bottles of glaze, and etc. In order to display all of our available glazes, so that students can know how the glazes will turn out in different kilns, I made sample tiles glazed in each glaze. These test tiles will all be arranged on a board and hung on the wall neatly for all students to see.

P - 6

Supplements for Spanish: Second language acquisition through technology

Crager

***Sarah Keating, Dr. Philip Krummrich and Dr. Alyssa Holan, Mentors, Department of Communication, Media, and Languages, Caudill College of Arts, Humanities, and Social Sciences**

Accessibility to endless online resources has created an opportunity for second language learners to improve their language skills outside of their coursework. A search for the best supplementary material available to Spanish language students was conducted to filter through this technology. The resources were reviewed based upon their potential to improve the language skills of students at beginner and intermediate levels. The following components of language proficiency were considered during the resource search: listening skills, writing skills, speaking skills, vocabulary knowledge, and grammar knowledge. After this initial investigation, a study was conducted in which a pool of MSU students evaluated the resources based upon their personal preferences and understandings of the quality of the materials. The final product of this research is a guide of websites and mobile applications that can be used as additional learning tools for students' Spanish language studies. This research was funded with the Honors Scholarship through an Undergraduate Research Fellowship.

P - 7

Sprouting and accent effects in much-less ellipsis

Cragger

****Matthew Porter, Sarah Nelson, Dr. Katy Carlson, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

In an ellipsis sentence like “The defendant didn’t hire a lawyer, much less { threaten one (VP) / an expensive one (NP),” the issue is which contrast people prefer (hire/threaten, or lawyer/expensive lawyer). The NP choice here exhibits an additional structural variable called sprouting: it contains an unmatched adjective (“expensive”) rather than a noun contrast to lawyers. In an auditory completion study, 48 subjects listened to partial sentences cut off after “much less.” Conditions varied whether the verb (“hire”) or the NP (“a/any lawyer”) were accented, and whether “a” or “any” preceded the noun. We predicted more VP choices than NPs overall due to the sprouting in the NPs; more VP choices with verb accent; and more NP answers with (accented) “any” than “a.” All of the predictions were confirmed, with over 90% VP answers when the verb was accented; 86% VP answers with “a LAWYER”; and 74% VP answers with “ANY lawyer.” This shows the effectiveness of accent position in sentences expressing contrast, as well as the way that a domain-widening phrase like “any” helps set up the subsets of lawyers needed to allow the NP contrast. This research was partially supported by NICHD R15HD072713 and NIH 5P20GM103436-13 grants.

P - 8

Both prosodic boundaries and accents influence attachment

Cragger

****Blake Clark, Dr. Katy Carlson, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

In a sentence like “Jimmy comforted the girl that he had insulted at the end of the party,” the final phrase can attach to and modify the nearest verb (“insulted”) or the earlier verb (“comforted”). This project shows that both prosodic boundaries and accenting influence such attachment. We hypothesized that a prosodic boundary between “insulted” and the final phrase would increase high attachments; that accenting the first verb “comforted” should increase high attachments; and that the variables would not interact. In an auditory questionnaire, 48 subjects listened to 24 sentences and chose between two paraphrases of the sentence: one showing high attachment and the other, low attachment. The recorded sentences varied in the presence or absence of a prosodic boundary and whether the first or second verb was accented. Indeed, accenting verb 1 with a prosodic boundary led to a 67% high attachment rate, while verb 2 accents and no boundary led to a 41% high attachment rate. The other two conditions were intermediate. Overall, the data shows that both accenting and prosodic boundaries influenced attachment, with separate, non-interactive effects, supporting previous work on other sentence structures. This research was partially supported by NICHD R15HD072713 and NIH 5P20GM103436-13 grants.

P - 9

Creating a sustainable classroom library for reluctant readers: A visual-media, learning commons approach

Cragger

****Lindsey Stiles, Dr. Alison Hruby, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

Classroom libraries are essential to promoting interest in reading. Research shows a strong correlation between an abundant availability of classroom books and students’ above-average reading achievement. However, students are often mercurial about book selections. My co-researchers and I have found that many students show little interest in the texts that students loved to read the previous year, making the management of classroom libraries difficult and expensive. To alleviate this issue, we found several strategies that teachers can use to build sustainable, appealing classroom libraries that enrich students’ learning experience. School libraries, in general, are undergoing changes to accommodate the practices of twenty-first century readers, shifting from large storage rooms that house materials for research and pleasure reading to spaces in which students “experiment, create, and explore.” By incorporating the role of students’ multimedia use in their reading lives, we aimed to foster student creativity, experimentation, and exploration in one classroom library.

P - 10

“Wingardium leviosa”: Elevating the minds of a younger generation through pop culture

Crager

***Greg Bryan *Katherine Griffiths, Dr. Kelly E. Collinsworth, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

The use of pop culture allows more serious topics, such as death and crime (both of which appear throughout the Harry Potter series), to be discussed within a fictional, safe environment. This poster examines a service-learning project that engages middle school students in the importance of jury service, the trial process, and the role of justice system as a whole through the vessel of a trial set within the wizarding world of Harry Potter. This poster illustrates the power of pop culture to educate and bring together minds of different ages, as well as highlighting challenges and benefits involved.

P - 11

Legal Aid of the Bluegrass: Service through partnership

Crager

***Katherine Griffiths, *Greg Bryan, Dr. Kelly E. Collinsworth, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

To illustrate the benefits of partnering with a service-oriented organization, this poster focuses on the student organized Pro Se divorce clinic and the data analysis of nursing home violation reports. Both civic engagement projects are in conjunction with LAB. The Pro Se divorce clinic helps impoverished people regain their individuality without the costly expense of a divorce attorney. The data analysis helps the Legal Aid nursing home ombudsman rank and address nursing home violations, so that the elderly receive the best care. Both projects, with the help of LAB, further the service being done to help the vulnerable populations. This research was supported by the Center for Regional Engagement.

P - 12

Equality, democracy, and the nation: The French Revolution and the end of Apartheid

Crager

***Wade Lowe, Dr. Alana Scott, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

Apartheid is an Afrikaans word meaning “separateness,” and refers to a political and social system of racial discrimination and white supremacy in South Africa between 1948 and 1994. The end of apartheid was truly a revolution; an oppressive system was overthrown by the masses. It is clear that ideas born in the French Revolution influenced the end of apartheid. Égalité was just as much a goal for the Third Estate in France, as it was for the oppressed non-white citizens of South Africa. In both instances, the vast majority of the population was denied their basic human rights. Democracy, the idea that the only just government is that based on the participation of all citizens, deriving its authority from the people, is another element. The people of France created one of the world’s first democratic republics, and the people of South Africa sought the same. Finally, the idea of the “nation” is important in both. The French people constituted themselves as a civic nation, based on shared ideas about liberty, equality, and democratic rule and enshrined in a constitution. The South African people sought the same, a new, non-racial identity for all South Africans.

P - 13

Hard power versus soft power: Case studies in American foreign policy

Crager

****Wade Lowe, Dr. Jonathan Pidluzny, Mentor, Department of Public Management and Government, College of Business and Technology***

This project examines America's use of hard and soft power to achieve foreign policy objectives, focusing on Latin America and the Middle East. I hypothesize that soft power is generally more effective, a more cost-efficient utilization of resources when conditions allow, than hard power.

This project investigates the hypothesis by way of two case studies. Each compares an American effort to achieve a political objective by military means to an effort to achieve a similar objective by diplomatic means in the same region. The first focuses on Latin America and compares the use of hard power to overthrow the Arbenz government of Guatemala in 1954 to the use of soft power to moderate the Bolivian Revolution of 1952. The second case study focuses on the Middle East, and compares the use of hard power to overthrow the government of Mohammed Mosaddeq in Iran to the use of soft power to encourage the peace process of Anwar Sadat in Egypt. In both cases, more durable results were achieved, at lower cost, by employing diplomatic as opposed to military means.

P - 14

Bicentennial: The influence of the 1789 French Revolution on the 1989 Romanian Revolution

Crager

****Kelsey May, Dr. Alana Scott, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

Romania was one of six eastern European countries to go through a revolution during 1989. It resulted from the twenty-four year rule of communist leader Nicolae Ceausescu and his wife, Deputy Prime Minister Elena Ceausescu. Unlike other revolutions of the time, Romania was the only country of the Warsaw Pact to violently overthrow and execute its leaders. Ceausescu and his wife were executed by firing squad on December 25, 1989, after they were caught fleeing the country and charged with genocide, destroying the nation's economy and spiritual values, and undermining the state's power by a military court. This account is similar to that of France's King Louis XVI because he also tried to flee the country, was caught, and subsequently executed by the new regime. His wife, Queen Mari-Antoinette, was also later executed. The Romanian Revolution was clearly influenced by the French Revolution.

P - 15

Campbell Farming Corporation story map, Big Horn County, Montana, 1918-1975

Crager

****Erin Long, Dr. Jason Holcomb, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

This research project is based on records of Campbell Farming Corporation of Hardin, MT, obtained from archives in Helena, MT. Montana Farming Corporation was founded by Thomas D. Campbell in 1918 during World War I and financed by J.P. Morgan after Campbell proposed the idea to President Wilson. Montana Farming Corporation originally included land on two Montana Indian reservations and later became Campbell Farming Corporation, with only the land on the Crow Indian Reservation. The farming venture added thousands of acres of wheat production to the war effort and operated until 1975. At its largest the farm was 95,000 acres on the Crow Reservation in Big Horn County, MT. Its location on the Crow Reservation became part of a complex agricultural landscape by nature of the land tenure situation on Indian reservations. Mr. Campbell was an engineer by training and also served in the military. Because of his experience with large-scale agriculture he was invited to the Soviet Union to advise them their Five Year Plans. Archival documents, photographs from the Big Horn County Historical Museum, and other historical documents were used to create a story map with Geographic Information Systems (GIS) software, telling the narrative of Campbell Farming Corporation.

P - 16

Promoting education abroad

Crager

****Kayla Mitchell, Dr. James Masterson, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

My project includes my overall experience while interning at the study abroad table in ADUC each week for 8.5 hours. During that time I promoted various education abroad programs to students by sending emails to them. My primary function was to connect students with the appropriate faculty member that can help them apply to a particular program and give them further detailed information. I also discuss with students who walk up to the table while I am working which has given me the opportunity to talk with them one on one about what is offered as far as education abroad programs and the different countries in which they take place.

For my presentation, I would like to present my internship experience, what I did and why I believe that education abroad is such an important part for any student's overall education. Having first-hand experience in a foreign country is one of the best ways to learn about the culture, language, and traditions and I believe this needs to be further emphasized in the presentation so that others can be informed as well.

P - 17

Fighting racial violence in Kentucky: The anti-lynching movement, 1890-1930

Crager

****Johnna Dorn, Dr. Benjamin Fitzpatrick, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

During the Civil War, most Kentuckians thought that compromising over slavery would solve the issue more successfully than war. However, after the war, the state's sentiment shifted towards the Confederacy. This change revealed itself through widespread racial violence. In the late 1800s, the National Association for the Advancement of Colored People (NAACP), and other organizations in Kentucky, led an anti-lynching campaign. These organizations successfully encouraged officials to pass new anti-lynching laws in 1897 and 1920. Although this movement has not been given much attention, the efforts of these groups successfully reduced lynchings and lessened racial violence in the state by 1930. Without the work of these organizations, lynchings and the perpetrators of these crimes would have continued to go unpunished in Kentucky. This research was supported by MSU Undergraduate Research Fellowship.

P - 18

Teaching assistant experience with English as a second language: Beginning grammar, listening, and speaking in spring 2016

Crager

****Jessey C. Reed, Dr. James Masterson, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

English as Second Language Programs (ESL) are designed to improve non-native English speaking students' proficiency of the English language. Classes in such programs teach speaking, listening, reading, writing, grammar, and American culture to international students. It is critical for non-English speaking students to improve their skills in what is considered the dominant business language in the world. This poster examines my participation in the International Studies 308 Internship as an ESL teaching assistant at Morehead State University. The end goal of the internship is a position as an English instructor in China. The poster also serves as a guide to students who are interested in teaching English abroad. Documented is my experience teaching English to international students at MSU, programs through which I received teaching certifications, and my process of applying for desired teaching positions.

P - 19

Witness: The progression of the Negro spiritual throughout music history with regard to the music of Hall Johnson

Crager

****Haley Kathleen Clay, Eric Brown, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

The tradition of the Negro spiritual is rooted centuries deep in the culture of world music. From slave hymns to art songs performed in modern day classical music settings, the spiritual has influenced the ways of the world, just as much as the ways of the world have influenced the spiritual. Hall Johnson, a twentieth century composer, perfectly captures the diverse and ever-changing nature of the Negro spiritual through his Collection of Concert Spirituals and Art Songs. These songs not only told stories of pain, struggle, and deep sadness, but of the strength, heroism, and faith of the black man and woman over the course of history. My research examines and analyzes five of Johnson's arrangements that capture the true essence of the Negro spiritual. This research will also embody itself in the form of a lecture recital to be performed during the Fall 2016 semester. Support for this research has been provided by an Undergraduate Research Fellowship through the George M. Luckey Academic Honors Program.

P - 20

Music and the mind: A greater look into how music effects the brain

Crager

****Darren Proctor, Dr. Brian S. Mason, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

The Brain: An intelligent functioning organ; an active organ that is connected to the rest of the nervous system and can therefore produce behavior. Music: The science or art of ordering tones or sounds in succession, in combination, and in temporal relationships to produce a composition having unity and continuity. These two definitions, when given in this context, have no general relation. With the use of various textbooks, in class learning and online resources, connections between music and the brain both on an internal and external level have been observed. Alongside this connection, knowledge about the brain and knowledge about music can be used to help individuals with varying ailments. Through research, discoveries have been made about the different ways in which music effects the brain and how these effects can successfully help individuals with Autism Spectrum Disorders and Dementia, more specifically Alzheimer's Disease. Alongside the presentation, a book has been made that compiles various songs that can be used to help individuals suffering from these ailments. This research has been supported by an Undergraduate Research Fellowship.

P - 21

History and styles associated with the Irish bodhran

Crager

****Kayla Ferguson, Dr. Brian S. Mason, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

The history and development of the Bodhran has not been well recorded and its origin is unknown. Some scholars speculate that it derived from similar instruments brought back from the Crusades while others make the assumption that it was originally used as a sieve that was played by young boys during St. Stephen's Day while hunting for a wren. Regardless, the instrument has developed significantly over the ages, both in performance and design. Many of these changes have occurred over the past decade with regard to performance technique, changes to the physical body of the instrument, in addition to the reason that the instrument is played. This research was supported by the Undergraduate Research Fellowship.

P - 22

A compilation of the repertoire requirements for undergraduate percussion auditions at top university and college percussion studios within the United States

Crager

****Joe Miller, Dr. Brian S. Mason, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

For many high school percussionists seeking to further their musical study at a college or university, the process of selecting appropriate and effective audition repertoire for admission to such an institution can be a daunting task. This intimidation is exacerbated by the fact that most all universities have different audition requirements, from what instruments must be played to what pieces are required or suggested. This study seeks to compile a list of the instruments, composers, and pieces that are most frequently recommended and/or required at undergraduate auditions for top university-level percussion studios in the United States. Ultimately, every school requires the student to play a solo on the marimba, timpani, and concert snare drum. Variance occurs when, at some schools, the core three instruments are supplemented with additional required or optional instruments or when certain pieces by a particular composer are required. From utilizing the results of the study, potential college students will be able to more confidently make informed decisions in their audition repertoire selection, and music professors will be able to reference the audition requirements of top collegiate percussion programs across the nation. Support for this research came from a Morehead State University Honors Program Undergraduate Research Fellowship.

P - 23

Research and study of fashion and costume history spanning from ancient Egypt to modern day

Crager

****Katie Dennis, Denise Watkins, Mentor, School of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

Through a generous donation to Morehead State University, research has been conducted on thousands of slides containing images of artwork and artefacts of historical significance. These images span from Egyptian hieroglyphics to the inaugural dresses of every first lady of the United States. The slides are in the process of being recorded and catalogued for future use by students in the hopes of furthering academic comprehension and awareness of the influence of costume and fashion history through the ages. Special thanks to the family of Gretel Geist Rutledge, Denise Watkins, my faculty mentor, as well as the Department of Music, Theatre, and Dance, and the Caudill College of Arts, Humanities, and Social Sciences.

P - 24

My life my choice: Preventing child sexual exploitation in Kentucky, a pilot program

Crager

****Emily MacFarland, McKinley Flint, Dr. Elizabeth Perkins, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

Commercial exploitation of children (CSEC) is the sexual exploitation of children for commercial gain through prostitution, pornography, and stripping. Dr. Elizabeth Perkins found in a recent study of adjudicated teen girls in Kentucky that roughly one in five adolescent females have a history of CSE. Recommendations from another recent study examining CSEC in Kentucky cited the need for training and education regarding trauma-informed treatment options. The support group model of the My Life My Choice Curriculum provides a psycho-educational emphasis as well as a relational/clinical component. The specific goals of the support group curriculum in regards to specific outcomes with the participants are:

1. Change attitudes by increasing teens' perceptions of the commercial sex industry as dangerous and debilitating.
2. Improve teens' understanding of CSE
3. Increase teens' ability to reduce the risk of exploitation or increase the likelihood that teens can find the path and resources to exit if they become exploited.

The KY Attorney General's Office funded three pilot My Life My Choice Support Groups, in collaboration with treatment facilities servicing adolescent females. The outcomes of these pilot groups have shown the groups had tremendous impact on the girls who have participated.

P - 25

Music therapy: A holistic approach

Crager

****Amie Williamson, Dr. Lisa Shannon, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

There is much support for music therapy as an intervention for stress, cognitive behavioral ideologies and coping skills. Music therapy was first developed in regards to Veterans returning from war who had significant Post Traumatic Stress Disorder, who needed alternative interventions. Music therapy is a field that serves people holistically and serves a wide array of venues. Intervention in music therapy can be found for infants, children, young adults, middle age, and the aging population. There are many different forms of music therapy, such as improvisation, which is creating rhythms and patterns without prior preparation, song writing, music reading and singing. Many of the studies show positive outcomes of music therapy interventions. Some cannot distinguish between the actual music therapy and an intervention in general, but are supportive of music therapy interventions. Overall, music therapy is generally accepted as a supportive intervention for people of all ages but there is very limited funding and availability of music therapists. This research was supported by an undergraduate research fellowship.

P - 26

The impact of campus recreation and wellness facility on student enrollment and retention

Crager

****Tyler Davis, Cole Osborn, Dr. Steve Chen, Mentor, School of Business Administration, College of Business and Technology***

In order to justify the investment of public funds for building a campus wellness center and recreation programs, this study examined the importance of the role that campus wellness center may play on students' preference in choosing their ideal institution. The respondents were 189 students (51.9% males and 47.6% females) randomly recruited in a cafeteria, classroom hallways, and quad of a regional state university in eastern Kentucky. About 32% of them actively utilize the center and provided service (at least three times per week). The results showed that students value the importance of the wellness center (M = 5.64 out of a 7-point scale) and provided programs (M = 4.74). No gender difference was found on the perceived importance of the recreation programs and the wellness facility. An overwhelmingly high level of satisfactory ratings for the current facility and service seem to justify the spending for building the facility and achieve its expected role in supporting retention. Additional interview comments and suggestions were given to help the wellness staff plan activities and improve existing services and attract prospective students.

P - 27

Changing aspects of the nature of work

Crager

****Sydney Gebka, Dr. Johnathan K. Nelson, Mentor, School of Business Administration, College of Business and Technology***

Jobs are changing in regards to how they are structured and work is accomplished, affecting job satisfaction, employee-employer relationships, and employee job security. Today's organizations are characterized by increased workplace flexibility, an increase in employee diversity, and unique employee-employer work arrangements. To identify significant changes in work today, we conducted a literature review to examine the changing nature of jobs and the effects that have occurred and will occur as a result. We have highlighted four important trends. Two of these trends are freelancing and telecommuting, which involve working a series of temporary jobs and using technology to complete work from any location, respectively. We also discuss the increase in individuals holding multiple jobs. Lastly, we discuss increased employee diversity, including the growing representation of multiple generations, minorities, and a growing number of women represented in our workforce. We then discuss the implications of these trends not only for organizations, but also for individual workers and to our broader economy. By better understanding the changing nature of work, individuals and organizations can better respond to and benefit from these changes. This research was supported by the MSU UG Fellowship Program.

P - 28

Why study abroad? Ascertaining the value of study abroad experiences and effects of such on student knowledge and perceptions overall

Crager

***Waylan Coffey, Dr. Janet Ratliff, Mentor, School of Business Administration, College of Business and Technology**

This research study involves a comparison of two years of travel abroad data from students taking a second nine weeks sprint international business course that concluded with a two-week international experience in the countries studied (Italy, Greece, and Turkey in 2014 and Germany, Switzerland, Austria, and Lichtenstein in 2015). This study involves an evaluation of pre/post tests, surveys and journals looking both at qualitative and quantitative data to analyze the value of study abroad experiences to students and the effect of such an experience on student knowledge of countries and perceptions about traveling abroad after being exposed to an appropriate curriculum and an international experience. MSU Undergraduate Research Fellowship sponsored this research.

P - 29

Understanding insights for building effective marketing strategies for women's volleyball

Crager

***Merideth Jewell, Dr. Steve Chen and Dr. Kenneth Henderson, Mentors, School of Business Administration, College of Business and Technology**

Despite the success on the court, many women's collegiate sport programs are consistently confronted by the issues of low fan attendance, budget constraint, and unsupportive gender stereotypes. This study examined college students' perception of women's volleyball and willingness for attending the competitions. A 24-question self-created survey based on literature (Bodenner, 2015; Imbriano & Downing, 2010; Wann et al., 1999) were administered to 139 college student participants who were randomly solicited on campus or an online platform. The results indicate that volleyball is the most popular and attended female spectator athletic event. Participants' perceptions of this sport are categorized by three main factors: (1) standard motivational factor, (2) socioeconomic and geographic concern, and (3) value and time constraint. Apparently, participants with athletic participation experience have a significant higher rating on the standard motivational factor than those who were non-athletes ($p < .05$). Participants who are affiliated with fraternity or sorority have a lower rating on standard motivational factor than who are not. Practical marketing strategies are drawn to promote and solicit attendance of various Greek student organizations by creating theme nights. More giveaways can be offered to reward more frequently attended and enthusiastic fans with athletic participation experience.

P - 30

A literature review of the membership, roles, and processes of healthcare ethics committees

Crager

***Benjamin P. Cain, Dr. Johnathan K. Nelson, Mentor, School of Business Administration, College of Business and Technology**

The use of healthcare ethics committees (HECs) in hospitals and other healthcare settings has grown tremendously. HECs are composed of healthcare professionals as well as individuals from throughout the community, including but not limited to, teachers, clergy, and professors. The purpose of healthcare ethics committees is to provide support for healthcare professionals working to resolve ethical dilemmas (provided through ethics consultations) as well as to promote ethical infrastructures for healthcare organizations. Ethics consultations involve bringing together different perspectives to resolve ethical dilemmas. However, despite their widespread use, while we understand the purpose and practice of HECs generally, we have only limited knowledge as to what factors contribute to the success of HECs. To begin to address this gap, a literature review of HECs was conducted, with an emphasis on HEC member characteristics and processes. This presentation will provide an overview of existing knowledge on healthcare ethics committees, highlighting specific roles of HECs, procedures used in ethics consultations, who serves on HECs, and what challenges current HECs face. This research was supported by the MSU/Appalachian Health and Research Center (AHRC) Undergraduate Research Fellowship Program.

P - 31

Design and testing of a scaled-down mechanical to hydroelectric energy converter

Crager

****Robert Rowlett, *Andrew Wesley David, Dr. Hans Chapman, Mentor, School of Engineering and Information Systems, College of Business and Technology***

This project seeks to demonstrate that renewable electrical energy can be produced through mechanical-to-magnetic induction in the absence of nonrenewable sources. The hydroelectric generator design functions by flowing water into a container and compressing the spring before the water rushes out and the spring is quickly depressed. This alternating mechanical motion produces magnetic induction, and with it renewable energy. The hydroelectric generator can be used to power a home with a stable source of vertically descending water flow in a larger scale design. This work has been made possible with the support of the Department of Engineering and Technology Management (ETM) and the Center for Regional Engagement (CRE).

P - 32

Solar cells efficiency and their tracking systems via microcontroller

Crager

****Chase Schell, Dr. Sanghyun Lee, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Conventional wisdom in the northern hemisphere is to point solar panels towards the south so that they can acquire the most UV rays, however to maximize the efficiency of these panels it is best to rotate the panel following the sun, to maximize the solar conversion. In this study we used several photoresistor's and a Data Acquisition instrument to compare the intensity between each resistor, using this information in conjunction with a microcontroller we create an algorithm that allows the panels to pan and tilt throughout the day. Even with a stationary panel at optimal orientation following the Azimuth and Zenith calculations (Measured in degrees based on the solar noon and solar arc) It is predicted that tracking versus stationary solar cells will produce 25-30% more power throughout the year. This research was funded with an Undergraduate Research Fellowship.

P - 33

Dental health initiative for on campus dental clinics

Crager

****Kelvin Basdeo, Dr. Ashraf Aly, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Throughout the nation there are a limited number of on-site dental facilities that provide much needed care for the student body. The Appalachian Rural Dental Education Partnership (ARDEP) has collaborated with Morehead State, St. Clair Regional Medical, and the University of Kentucky to start a full dental opportunity for universities who otherwise do not have a dental or hygiene component. This opportunity provides students with low cost visits who either does not have insurance or access to such dental facilities. The dental suite offers health screenings, exams, x-rays, prophylactic, and restoration treatment as in fillings and extractions at low cost and on-call services for emergencies or follow-ups. ARDEP, through the collaboration, are teaching the students the importance of dental health, for example, your eyes can indicate problems with your liver, the oral cavity may suggest problems with your heart, suggest stroke, or diabetes. The dental health initiative and teachings that are offered can remove the fear of high cost visits, and because professionals do the treatments, remove the fear of dental treatments, and help raise awareness and get other universities or colleges involved. This research was supported and funded by Appalachian Regional Commission.

P - 34

Two-player game AI

Crager

****Hunter Noble, Dr. Ashraf Aly, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Artificial intelligence (AI) is an important part of many video games. Many games have an integrated AI to allow a player to have objects to interact with. These AIs can vary from complex things like fully fledged characters to more simple things such as an AI that is capable of playing a number guessing game. AIs can be initially difficult to understand. With the example of an AI with a simpler task, it can be used as an example to branch off of for further exploration. The aim of this project is to understand the AI that serves as a stepping stone for further developments.

P - 35

Analyzing electrocardiogram and respiratory data to predict risk factors for sudden infant death disorder

Crager

****Trevor Figgins, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Infants who meet certain risk factors for SIDS are kept in the hospital for additional monitoring to prevent the death of the at-risk infant. Data has been collected by monitoring the heart rate and respiration of both healthy and at-risk infants. Parameters to determine risk factors will be found using a program created in Matlab. Using the Weka open-source data mining software, these parameters will be used to develop an algorithm to predict the onset of SIDS earlier. Early detection of the onset of SIDS can help improve treatment and could improve mortality rates.

P - 36

Meta-analysis on enterprise resource planning (ERP) systems

Crager

****Andrew Blevins, *Nathan Blevins, Dr. Haiwook Choi, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Enterprise resource planning (ERP) is a type of business-management software, typically a system of integrated applications, that business organizations can use to manage data from all levels of operation, including product planning, development, manufacturing, sales, and marketing. The key benefit of ERP systems is a shared database that supports these various aspects of operation, so that processes and information are streamlined across the entire organization. Versions of ERP software systems have been used by organizations since the 1990s to increase business productivity and efficiency. Current ERP literature includes research assessment, design/planning, evaluation/maintenance, education/training, implementation, and strategy. Our research aims to review and conduct meta-analysis on this existing ERP literature.

P - 37

Effectiveness of group decision support systems in learning environments

Crager

****Zachary A. Kelly, Dr. Donna L. McAlister Kizzier, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Although extensive research has been conducted on the effectiveness of group decision support systems (GDSS) in business, a need existed for application of GDSS to learning. The following research questions were addressed: (1) To what extent, if any, do the decision-enhancing features of GDSS significantly affect the quality of critical thinking activities in learning environments? (2) To what extent, if any, does the effectiveness level of the learning outcomes vary by class level and/or delivery mode? (3) What insight can be gained from the data analyses? The exploratory study assessed multiple MSU classes ($n = 27$) using mixed methods to achieve triangulation. ANOVA results discovered significant statistical effects for four of the factors tested (high level contribution (.033), productive use of time to achieve solution (.001), highest quality solution achievement (.000), and most creative viable solution (.001), with the effectiveness of the GDSS strategy surpassing more traditional technologically-enhanced instructional strategies. The research was partially supported by MSU UG Fellowship program.

P - 38

Using cardio-respiratory signals to detect SIDS in newborn babies

Crager

****William Carson, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Sudden Infant Death Syndrome (SIDS) is a leading cause of death among newborn babies. Current detection methods of SIDS are time consuming, expensive, and emotionally taxing, often taking months of observation of the infant. Our objective in this project is to devise a more sensitive tool for detecting respiratory instability in infants who are admitted to the hospital for monitoring. ECG and respiration data of known healthy babies and babies who suffered from SIDS was collected. Using frequency domain analysis to index infant's cardio-respiratory stability was one of the methods chosen. Further digital signal processing methods will be studied and attempted. This will hopefully solve the goal set forth in this research project.

P - 39

Detecting cardio-respiratory instability in neonates

Crager

****Joshua Todd Carroll, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

Sudden Infant Death Syndrome (SIDS) is the leading cause of death among infants, and claims the lives of about 2,500 each year in the United States. Public hospitals spend billions of dollars annually on cardiorespiratory monitoring of at risk infants. While such monitoring, can be used to identify unusual events they are not able to predict the likelihood of events at a later time. In this project we aim to devise a technique that takes a digital signal from a standard hospital cardiorespiratory monitor using it to predict the likelihood of a subsequent event. Using a dataset obtained from typical monitoring systems in the hospital, consisting of various lengths (5min – 12min) of heart rate and respiration signals of healthy infants and also infants housed in the NICU, we have designed and implemented algorithms in MatLab that extract key features of the heart rate and respiration in the time domain and also in the frequency domain. After extracting these features, we will use a percentage of the extracted feature sets as a training set in Waikato Environment for Knowledge Analysis (WEKA) to obtain a classifier. The accuracy of our classifier will be tested with the remaining extracted feature sets.

P - 40

SIDS, SUID, and machine learning in medicine

Crager

****Eric Lawson, Dr. Shahrokh Sani, Mentor, School of Engineering and Information Systems, College of Business and Technology***

In 2014, fifteen-hundred deaths were ruled to be the result of Sudden Infant Death Syndrome. It is the leading cause of deaths among infants less than 1 year old. Sudden Infant Death Syndrome, SIDS, is part of a larger still category of infant deaths, Sudden Unexpected Infant Deaths. There are roughly 3,500 such unexplained deaths each year in the U.S. alone.

Hospitals generate terabytes of imaging, diagnostic, monitoring, and treatment data. Applying machine learning on datasets this large present a real possibility in finding connections and patterns across patients, clinics, and hospitals nationwide, in addition to producing more effective treatments and practices.

This project covers the application of a broad variety of machine learning techniques to a dataset which includes the vital statistics of both healthy infants and infants in an NICU in the hopes of discovering early indicators of a risk of sudden death.

P - 41

A tale of two cities, Paris and Teheran: The French and Iranian Revolutions

Crager

****Christian Yancey, Dr. Alana Scott, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

The extent to which the French Revolution influenced the Iranian Revolution must be questioned given the many differences in historical contexts. However, the similarities between the two revolutions are startling, and outweigh the differences. These two revolutions reflected popular ideologies, the popular ideas among the citizens of the nations where they took place. They were reactions to leaders who were seen as being alienated from the general population. Also, apart from the revolutions of the general citizenry, there would be wars fought because of the revolutionary activities in these countries. Both revolutions became very bloody and violent.

P - 42

In the know: Classroom teacher's knowledge of gifted student characteristics

Crager

****Brittany Wilson, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The brightest students in our schools make the least progress each year (Colangelo, Assouline, & Gross, 2004). Instead of setting a high standard of excellence in the classroom, when their educational needs are ignored, gifted students become disengaged and unmotivated. Students won't receive appropriate instruction if nobody knows they are gifted. This study examined classroom teachers' ability to identify the characteristics of students' in the 5 areas of giftedness recognized in Kentucky: Visual and Performing Arts, Creative and Divergent Thinking, Leadership, General Intellect, and Specific Academic Aptitude.

P - 43

Teaching CCSS to individuals with significant disabilities within an inclusive environment

Crager

****Holly Wells, Dr. Sarah Hawkins-Lear, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Constant Time Delay is an errorless teaching strategy used widely in the field of special education. The presented research study was conducted to examine the effects of Embedded Constant Time Delay procedures used when teaching Common Core State Standards (CCSS) to students with significant disabilities within the inclusive environment of the Physical Education classroom. Six subjects participated in the study. The subjects ranged from 6th- 8th grades, with varying disabilities, such as Autism, CHARGE, and Functional Mental Disability. The CCSS skills were taught to students by the paraprofessional who was trained by the researchers to implement the teaching strategy. Baseline, intervention, maintenance, and generalization data were collected throughout the research study. All students made progress above baseline data. This demonstrates that when students with significant disabilities participate in inclusive environments, they become successful and contributing members of the general education population. This study is supported through the College of Education's Undergraduate Research Fellow and Morehead State University's Research and Creative Productions.

P - 44

Breaking down tasks in order to decrease off-task behavior

Crager

****Sara Whaley, Dr. Delar Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The purpose of this research study was to determine if there is a correlation between breaking larger activities down into smaller tasks and the number of classroom disruptions. The researcher collected frequency data three days a week, for 30 minutes, over a six-week period. For the first three weeks, the students participated in whole group discussions and activities. During the second half of the trial, the researcher implemented an intervention. Whole group instruction and activities were broken down into shorter, ten-minute tasks. These results indicate that breaking larger activities down into smaller tasks significantly decreases the total number of disruptions in a classroom setting.

P - 45

The relationship between letter-name and letter-sound knowledge correlation with mnemonics cards

Crager

****Katie Adkins, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

In this study, the researcher investigated meaningful ways to enhance sublexical skills (letter identification, letter-sound knowledge, and phonological awareness). After teaching with an instructional method of using letter cards with picture mnemonics, stories, and related actions to sound, letter-name and letter-sound knowledge increased for all students as expected. To compare the progress of students, data was collected over a time period of six weeks; baseline data was collected after the beginning of school, data was collected again to see growth after routine methods of teaching, and data was collected for a third time to see the advancement after applying identification, story connections, and engagement through letter cards. Findings suggest that students were able to make connections through multisensory cues after letter cards were implemented into the regular routine of a kindergarten classroom. Results prove that an expressive, connected learning experience will enhance sublexical skills in a more effective way than repetition and memorization of letter-names and letter-sounds alone. A special thank you goes to the cooperating teacher at a Rowan County school for allowing the implementation of the intervention in the classroom.

P - 46

The effects of a multi-sensory approach on teaching the alphabet

Crager

****Jenna Harris, Dr. Daniel Grace, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

For decades, research has been conducted and theories developed regarding the impact a multisensory approach has on the education of young children. Many believe that the more senses stimulated during a lesson, the better the student will comprehend and retain the information being taught. This study examined the effectiveness of a multisensory approach to teaching letter retention and sound recognition of letters in the alphabet. The experimental group was taught letters of the alphabet using visual pictures, a song as auditory stimulation, along with hand motions in order to incorporate kinesthetic movement. After implementing the multisensory approach for four weeks, data was collected on what letters and sounds students could recognize. The results indicated there was no difference in the performance of the control group versus the experimental group.

P - 47

The influence of brain breaks on behavior in today's classroom

Crager

****Ashton Bingman, *Andrea Hollin, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Knowing the route to take in effective classroom management can be difficult, but proves to be crucial in keeping the classroom running smoothly. A study was conducted on the effect of "brain breaks" on students' behavior in a fifth and first grade classroom to see if they met their purpose- to give students a break from instruction, expend extra energy, and re-focus on the task at hand. Based on an analysis of the data, it appears that brain breaks have a positive effect on students' behavior in the classroom. The inclusion of brain breaks into the daily classroom routine appears to yield more opportunities for praise and rewards. This research would not have been possible without the support of the Rowan County School District.

P - 48

Transition time in the classroom

Crager

****Franca Joseph, Dr. April Miller, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Long transitions can result in lost time for student learning. Transitions in an elementary school classroom can typically take up to 33 minutes in the morning. A study was conducted to examine the use of a time cue. When students learned a cue to respond to, they were more focused and aware of the transition, decreasing the transition time to 18 minutes, on average, and allowing 15 more minutes for instruction. Special thanks to Rodburn Elementary School in Rowan County of allowing the intervention to be implemented.

P - 49

Stop clock transitioning

Crager

****Jordan Jacobsen, Tabbie Porter, Megan Lane, Dr. April Miller, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Instructional time is highly important in the classroom. Therefore transitioning should be at a minimal, to ensure the students receive adequate teaching time. This research project focused on the effectiveness of using transition timers in the classroom. The amount of time students took to transition when they weren't aware of a timer was compared to the amount of time when they were aware of a timer. It was decided to allot forty-five seconds for a transition on the timer. For three weeks, a countdown timer displayed for the students. After using the countdown timer, transition times gradually decreased about 53%. This research project couldn't have been completed without the support and help from the Rowan County Schools.

P - 50

How playing Mozart music during spelling assessments improves test scores

Crager

****Ada Helton, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Does playing music during assessment improve test scores? A six-week study was performed in a first grade class; during the study, music by Mozart (Piano Concerto No. 23 in A, K. 488) was played during spelling assessments. The students' results were compared to spelling assessments without background music. The results found that students preformed significantly better when music was played in the background compared to when there was no music played in the background. On average, student assessment scores improved 12% when music was played in the background during assessment.

P - 51

Implementation of a classroom timer

Crager

****Arin Oldfield, Dr. Kimberley Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The purpose of this study was to identify if students would utilize time more efficiently with the implementation of a classroom timer compared to the non-implementation of a classroom timer. Data was collected over an eight-week period in four phases: phase one was the time period before the implementation of the timer; phase two was the first implementation of the timer; phase three was the removal of the timer; and phase four was the second implementation of the timer. Data collection showed that students utilize time more efficiently when a classroom timer is implemented. Support for this project was given by the Rowan County School System of Kentucky.

P - 52

Does weekly practice improve oral reading fluency?

Crager

****Karlee Willoughby, Rebecca Maynard, Dr. Daniel Grace, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

This study addressed the question of oral reading fluency and its importance to developing proficient readers. Oral reading fluency is considered a necessary skill all successful readers must obtain. Oral reading fluency, typically measured as the number of words read correctly in one minute, is an important indicator of reading proficiency (Logan, 2010). Over the course of 6 weeks, using weekly oral reading practice, 6 out of 6 students showed improvement in their oral reading fluency with higher words read per minute and fewer errors while reading. Students' progress will not only help their overall reading fluency but assist in helping their overall academic achievement.

P - 53

Strike up the band: The effects of music on the classroom behavior

Crager

****Kayla Ann Skinner, Dr. Daniel Grace, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

A body of research claims that music, and more specifically, classical music, can affect cognitive processes. This phenomenon has been called, "The Mozart Effect." The aim of this research was to determine whether playing classical music influences classroom management and student behavior. During this study, behavior data was recorded with and without music. Data from each month was analyzed in regards to whole class behavior and by gender. Results from this study indicate positive correlations between background music and student behavior.

P - 54

The effects of brain breaks on classroom disruptions in the elementary classroom

Crager

****Cody Smith, Katelyn Sexton, Spencer Sullivan, Dr. Delar Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The purpose of this study was to evaluate the effects of *GoNoodle*© *Brain Breaks*, and similar physical activity breaks, on the number of classroom disruptions in three classrooms across grade levels. This study defines classroom disruptions as an interruption made by a student that forces the classroom teacher to stop instruction to address the problem.

The researchers collected data on the number of classroom disruptions during reading instruction in a 1st, 3rd, and 5th grade classroom without any intervention for three weeks. *Brain Breaks* and physical activity breaks were then introduced as an intervention prior to reading instruction, and data was collected on the number of classroom disruptions for three weeks.

After Brain Breaks and physical activity breaks were systematically implemented, classroom disruptions were reduced substantially, leading to improved student engagement and on-task behavior.

P - 55

At the sound of the beep: Using timers to decrease off-task behavior

Crager

****Elizabeth Roberts, Dr. Daniel Grace, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Starting the day in elementary classroom is not always smooth, as teachers try to focus students on learning. The use of a Bell Ringer or other morning work is one strategy that is often used with students. Unfortunately, this focus activity can often take too much instructional time. While the purpose of morning work is to prepare the students' mindset for learning, in many elementary classrooms, students stretch out their opening activity. Instead of bringing the class together, teachers have found that it becomes a distraction to a smoothly flowing classroom. Off-task behaviors often occur and this can set the tone for the day. This study examined the effects of using a timer as a visual aid to decrease off-task behaviors during the opening lesson. Data was collected over 6 weeks in a fourth grade classroom to determine if the timer was an effective management tool. The findings support the use of the timer in the classroom.

P - 56**The Mozart effect on elementary English language learners, special needs, and exceptional students****Crager**

***Andrea Porter, Chelsea Mays, Kristen Moore, Taylor Johnson, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

Research was taken on two groups of 2nd graders. One group listened to Mozart while taking math assessments while the other class did not. Each group was taking the same math assessments with the same scoring guide. Results showed that listening to classical music does not affect the scores of students. A closer look was given to ELL students, gifted students, and students with disabilities. Their scores did not show a dramatic change between the two different circumstances.

P - 57**The effective genre of music on wanted behavior for EBD students****Crager**

***Kevin Miles, Dr. Daniel Grace, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

Many studies have been conducted on the effect of music on behavior and learning. This study examined the impact of music on promoting appropriate or desired behavior. Using a variety of music; classical, country, and hip-hop and none, data was collected over a period of four weeks. Student subjects were those who exhibit some form of an Emotional Behavioral Disorder (EBD) so their behavioral goals were individualized on their tracking sheets. Desired behaviors were tallied in 2 hour increments. The weekly scores were tallied and an average score representing each genre of music was recorded. The results indicated that individual musical preference appeared to play some part in the success of the intervention.

P - 58**Co-teaching: Do school and university partnerships influence behavior in the classroom?****Crager**

***Madison McIntyre, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

In a School-University partnership, pre-service teachers are paired with classroom teachers for internship placements. The goal of these partnerships is improved student learning. Behavioral disruptions by students can hinder classroom instruction. The impact of a pre-service teacher on student behavior in a third grade classroom in rural Appalachia was monitored and recorded over a period of six weeks. Behavioral data was recorded both with and without the pre-service teacher in the classroom. The results of the study indicate that the average number of student misbehaviors dealt with each day during the study were greater when the pre-service teacher was present. Further research is needed to determine if instructional time decreased or increased as a result of the pre-service teacher's presence.

P - 59**Homelessness among school children: A close look****Crager**

***Alicia Ann Byers, Carrie Thomas Frazier, Dr. Delar K. Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

The incidence of homelessness is growing in the United States of America. In education, homelessness is defined in multiple ways. For instance, when a child does not live in a home which is independently run by his/her parents, the child is considered homeless. Homelessness among school children has serious implications for educators and for the future of homeless children. Our research focuses on presenting the definition and criteria of homelessness for school children; emotional, cognitive, physical, and learning challenges that homelessness imposes on school children; accommodations that schools and teachers can make for their homeless children; and finally information about programs for homeless school children in Eastern Kentucky.

P - 60

Sibling involvement in early intervention

Crager

****Cierra M. Thompson, Dr. Julie Rutland, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Recommended Practice and Legislation recognize family involvement in early intervention as vital to support the outcomes of young children who receive special services for delays, disabilities, or risk factors. It is understood that family members, siblings included, spend more time with, and have the greatest influence on these children. Research informs us that; 1) sibling interactions consume a large part of everyday family routines, and offer naturally occurring opportunities for learning, and 2) services should be delivered in natural environments as this increases opportunities for learning. This increase is due to the many more opportunities found in their typical every day routines (home, car, playground, or church.) When compared to unnatural environments, these are the best settings for intervention as children are able to use skills and strategies in their normal activities, which is more functional and better generalized. Unfortunately, there is a gap in research about sibling involvement in early intervention. Sibling involvement in early intervention may offer very young children with special needs more opportunities to learn. In response, a survey was conducted to learn more about sibling involvement in intervention strategies developed for their young child with disabilities. This research was funded with an Undergraduate Research Fellowship.

P - 61

Influence of background music on reading speed and comprehension of elementary-age students

Crager

****Spencer Sullivan, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

This study will research the effectiveness of different types of music on the reading speed and comprehension of fourth grade students. The purpose of this study is to determine whether playing music while reading should be implemented class-wide, or only on an individual or small group basis. Instrumental and lyrical music will both be utilized, and their efficacy determined through the use of reading passages. Both slow and fast music of both types will be used, to determine if the tempo of the music has an effect as well. This research was supported by the George M. Luckey Jr. Academic Honors Program.

P - 62

Assistive technology

Crager

****Samantha Hearn, Maeghaen-Kaytlyn Flora, Dr. Delar K. Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Assistive technology refers to any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. Assistive technology can be low tech, mid tech and high tech. Hearing aids, amplified telephones, desktop magnifiers, braille embossers, screen readers, walkers, transfer benches, communication boards, touch screen mobile computers, hand held dictionaries, text-to-speech software, pencil grips, raised line paper, highlighter tape, and color overlays for reading are all examples of assistive technology. This presentation focuses on reviewing research on selected assistive technology devices. It also emphasizes the importance of collecting data to ensure the appropriateness of identified assistive technology device for the individual with disability.

P - 63

Child abuse: What is the impact?

Crager

****Nicole Goins, Dr. Delar K. Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Child abuse is an international problem. It takes place at every socioeconomic level and at all levels of education. In the USA, more than five children die of child abuse every day. There is evidence indicating that abused and neglected children later abuse their own children, continuing the cycle of brutality. Not only that, children who are abused tend to develop physical, emotional, behavioral, and learning problems. Their past and present experiences with abuse may result in a disability that requires special education services in the schools. The focus of my research is to present selected literature that indicates child abuse can affect a child's learning experiences and lifestyle. Further, prevention of child abuse is likely to lead to a decline in a number of disabilities.

P - 64

Emotional intelligence: What is your EQ?

Crager

****Gina Atkinson, Brooke Smith, Dr. Delar K. Singh, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The relevance of emotional intelligence is widely debated in education. Our presentation will focus on the definition of emotional intelligence, its origin, ways it can be measured, its significance in everyday life, and the need to make children emotionally intelligent. We will also discuss research based strategies that can be used to inculcate emotional intelligence in children.

P - 65

Preschool science in action

Crager

****Emily Jackson, Patricia McClure, Dr. Mee-Ryoung Shon, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

The purpose for this action research was to investigate the effects of science activities in a preschool classroom. Many preschool teachers are reluctant to provide engaging scientific activities in preschool setting due to age of preschoolers who are still in pre-operational cognitive development stage, without ability to conserve and reverse operations. Our series of activities were selected to provide their understanding based on how things are seen or perceived in order to facilitate their beginning cognition of representational thought. Each week, children in Bath County preschool were introduced to a variety of life, physical, and earth/space science activities. Two researchers worked together to lead the activities and collect data utilizing webbing, charts, work samples, booklets, photos, and a KWL chart. The results demonstrated improvement in communication and social skills, enriched vocabulary, refined science inquiry skills, and self-driven motivation to participate in the science center activities and use of science materials. This series of activities supports the following Kentucky Early Childhood Science Standards: Benchmark 1.2 "*Identifies objects that influence or affect other objects*", Benchmark 1.3 "*Uses standard tools to explore the environment*", and Benchmark 1.5 "*Draws conclusions based on proved/disproved prediction*".

P - 66

SOS! My inattentive student is disrupting the classroom!

Crager

****Maria Leeanne Kallas, Dr. April Miller, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

During the spring 2015 semester, I worked intensively with one student to dramatically change his behavior using applied behavior analysis. In a conversation with his teacher, the teacher said, "I feel like I have done student 1 a great disservice because I have not been able to find a behavior management strategy that works for him." According to his teacher, he was a healthy child who was successful enough on state tests to hit all of the benchmarks, but did not otherwise excel.

During the fall 2015 semester, I repeated my hypothesis with a set of three first graders: students 24. Students 24 responded favorably under the same positive reinforcement conditions.

This presentation will examine the quantitative data collected during the spring 2015 and fall 2015 semesters. The data point included examines the 1:1 implementation through a Diffusions of Innovation theoretical framework. The presentation will cover the systematic implementation of a behavior change plan utilizing applied behavior analysis techniques to increase ontask behavior. It will challenge teachers to use other methods of classroom management than taking away recess for misbehavior.

This research has been presented at the KY ATE conference, Posters at the Capitol, and in Washington, DC at the NAPDS conference.

P - 67

Trends in stakeholders' perceptions of Mason County's 1:1 iPad implementation

Crager

****Maria Leeanne Kallas, Dr. John Curry, Mentor, Department of Foundational and Graduate Studies in Education, College of Education***

During the 2012-2013 school year, Mason County High School, located in Maysville, KY, launched a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. This comprehensive presentation will examine the qualitative and quantitative data collected across four years. The data points included examine trends in stakeholders' perceptions from the 1:1 iPad implementation, specifically following the class of 2016 from their freshman year through their senior year. Additional data points include popular cheating methods, impact on test scores, and the effect on student motivation. This presentation has been presented at the Kentucky Association for Teacher Education conference, Posters at the Capitol, and National Association for Professional Development Schools conference in Washington D.C. This research is sponsored by Morehead State University's College of Education through the Undergraduate Research Fellowship Program.

P - 68

Games and simulations in soft skills training

Crager

+DeAnna L. Proctor, Dr. Jeannie Justice, Mentor, Department of Foundational and Graduate Studies in Education, College of Education

The purpose of this study was to determine if the use of an online simulated interview program, Perfect Interview™ Interview Coach, affected confidence and preparedness in soft skills exhibited during the interview process. Participants were selected from ten Interpersonal Communication courses at Somerset Community College and selected as part of the experimental group (had access and completed a minimum of four sessions of the online simulation program) or selected as part of the control group (did not have access to the online simulation program). All participants completed a Job Interview Skills Self-Assessment Instrument composed of nine statements related to confidence and nine statements related to preparedness. The results of the study did not support the research hypothesis that an online simulated interview program affected confidence and preparedness in the interview process; however, research provided in this study contends that games and simulations can build confidence and better prepare individuals for face-to-face interviews. Limitations of this study are addressed for future research opportunities and provides suggestions for educators in implementing games and simulations for soft skills training into the educational curriculum.

P - 69

Technology use in secondary chemistry and physics classrooms in Kentucky

Crager

****Justin M. Elswick, Dr. Lesia Lennex, Mentor, Department of Middle Grades and Secondary Education, College of Education***

As the presence of technology grows, so does its importance and usefulness to chemistry and physics education. This study focused on how technology is being used in secondary chemistry and physics classrooms across Kentucky and its perceived classroom effects. Using SurveyMonkey, 74 secondary chemistry and physics teachers in 34 Kentucky school districts were asked about the kinds of technology they used in their classrooms and in what way(s) they used technology. The survey response was 23% (N=17). Survey results indicated that teachers used videos, various apps and websites, cell phones, tablets, lab aids, and SMARTboards in their classrooms. Teachers reported using technology for enhancing instruction, easing data collection, and student research. Overall, teachers felt that technology makes instruction better and easier, but can also become a huge distraction for students. This research was made possible by an Undergraduate Research Fellowship through the Honors program.

P - 70

Post-operative bleeding in Greyhound dogs using an abbreviated aminocaproic acid treatment protocol

Crager

****Courtney Hamblin, Dr. Kimberly Peterson, Mentor, Department of Agricultural Sciences, College of Science***

Background: Antifibrinolytic drugs such as epsilon aminocaproic acid (EACA) have been used in previous studies of retired racing greyhounds (RRG) to prevent the occurrence of delayed post-operative bleeding (DPOB). The objective of this study was to build on previous research and minimize the number of dosages of EACA needed. Hypothesis: Using an abbreviated protocol of EACA on RRG after surgery can reduce the number of dosages from fifteen to nine. Animals: Six dogs were used in this study: three females and three males. Methods: Each dog underwent a gonadectomy and directly after surgery was given his/her first dose of EACA orally. They then received eight more doses orally every eight hours. Results: Using a compounded form of EACA, the female from the first round did not show any complications after surgery while the male experienced DPOB. A new bottle of EACA was used for the remaining six dogs and none showed signs of DPOB. Conclusions: The abbreviated protocol of EACA may be effective at reducing delayed post-operative bleeding in retired racing greyhounds; however, this is impossible to conclude definitively since there is no way of determining prior to surgery which dogs may be predisposed to bleeding.

P - 71

Effects of two-stage weaning duration on beef cattle growth and vocalization

Crager

****Ashley N. Deller, *Emery O. Clark, Dr. Flint Harrelson and Dr. Patricia Harrelson, Mentors, Department of Agricultural Sciences, College of Science***

Stress during weaning is two-fold, physical separation of the calf and dam along with the alteration of the calf's nutrition due to the prevention of nursing. At weaning, the calf will exhibit increased vocalizations and decreased appetite. One way to reduce the stress at weaning is to use a two-stage weaning method, where an anti-suckling device is placed in the nostrils of the calf for 4-7 days prior to weaning. This allows the calf to remain beside their dam, but unable to nurse. The use of this device has been shown to reduce the stress of the calf, however, has negatively impacted the calf's growth rate. During this study, anti-suckling devices were placed on calves either 4 or 2 days prior to weaning or no device was placed. We measured vocalizations and calf body weights. We observed a linear effect ($P=0.006$) in post-weaning average daily gain, as calves with no anti-suckling devices displayed the highest, and calves in 4-day treatment exhibited the lowest growth rate. We observed a treatment by day interaction as calves without anti-suckling devices, vocalized more starting on the day of weaning and continued 3 days after ($P<0.0001$). This research was supported by MSU Undergraduate Research Fellowship.

P - 72

Separation and identification of pyrazoline compounds using high performance liquid chromatography (HPLC)

Crager

****Bryant DePaul Cornwell, Dr. Mark T. Blankenbuehler and Dr. Nathan Coker, Mentors, Department of Biology and Chemistry, College of Science***

This research attempts to separate and identify pyrazoline ring system products via High Performance Liquid Chromatography, or HPLC. A new chromatographic method in this research was developed around a method used by Rao et. al. The new method was used to investigate mixtures of products that resulted from the attempted synthesis of new pyrazolines from alpha, beta unsaturated ketones and hydrazine sulfonamides. Two different chromatography columns, C-18 and reverse phase Inertsil ODS-3, were used to evaluate the mixtures. Multiple components were separated but the chemical structure of each individual component has not yet been determined.

P - 73

Quantitative analysis of thyroid hormone receptor expression in the developing hindbrain of *Xenopus tropicalis*

Crager

****Ivy D. Creahan, Dr. Kurt M. Gibbs, Mentor, Department of Biology and Chemistry, College of Science***

Xenopus tadpoles are able to regenerate their spinal cords following central nervous system injury. We have found that the hindbrain contains the largest number of neurons that can regenerate their axons and restore locomotor function after complete spinal cord transection. Tadpoles lose this ability as they approach metamorphosis, which is mediated by thyroid hormone and its receptors. We have quantified the expression of thyroid hormone receptors in the hindbrain during various stages of development to further understand the loss of regenerative capacity that occurs with progressing development. This work was supported by NIH grant R15HD076643-01A1.

P - 74

Remodeling of the actin cytoskeleton and contraction in the A7r5 smooth muscle cell

Crager

****John N. Alcorn, *Joshua S. Carty, Dr. Michael Fultz, Mentor, Department of Biology and Chemistry, College of Science***

Data suggest that differential remodeling of alpha-actin and beta-actin could play a necessary role in smooth muscle's unique contractile properties. When smooth muscle cells are stimulated by Phorbol ester (PDBu), the actin in the cells appears to remodel into podosomes, which are putatively important structures in smooth muscle contraction. Data suggest that the formation of these podosomes primarily involves the remodeling of alpha-actin, while beta-actin remodeling is hypothesized to function in holding the contracting smooth muscle cells in their shortened configuration. The effect of rho-kinase (ROCK) inhibition on the structure of actin in smooth muscle was examined by time-course treatment of A7r5 smooth muscle cells with the ROCK inhibitor Y-27632 and subsequent differential immunofluorescent staining of alpha-actin and beta-actin. The data suggest that ROCK inhibition leads to the dissolution of extant alpha-actin stress cables. Furthermore, the data suggest that the beta-actin ultrastructure in smooth muscle cells is less affected by ROCK inhibition. These data support the existence of a differential mechanism for the regulation of alpha-actin and beta-actin maintenance and remodeling in smooth muscle cells.

P - 75

Investigating Rowan County Lepidoptera biodiversity, part five: Nymphalidae and Riodinidae

Crager

***Rachel Brown, Dr. Sean O'Keefe, Mentor, Department of Biology and Chemistry, College of Science**

According to Charles Covell's 1999 work *The Butterflies and Moths (Lepidoptera) of Kentucky: An Annotated Checklist* and its 3 supplements, there are 2493 species of Lepidoptera (butterflies, moths, and skippers) known from Kentucky, with 563 of these occurring in Rowan County (RC). Our project updates Covell's records from RC via data from The Society of Kentucky Lepidopterists and the current Lepidoptera collections of Morehead State University (MSU) and Jonathan Smith. This poster concludes our research updating the superfamily Papilionoidea, which contains the families Papilionidae, Pieridae, Lycaenidae, Nymphalidae, and Riodinidae. Previous posters have shown the results of the first three families, where we identified numerous new county records (NCRs) (one in Papilionidae, four in Pieridae, and eleven in Lycaenidae, bringing RC's total to six, eight, and eighteen species respectively). Here we update the Nymphalidae and Riodinidae found in RC and provide members' common and scientific names, Hodge number, phenotype, host plants, and seasonality. Covell records eighteen species of Nymphalidae and no species of Riodinidae in RC. We identify ten NCRs in Nymphalidae and none in Riodinidae. We thank the MSU Department of Biology and Chemistry for partial funding and to Johnathan Smith for providing specimens to photograph.

P - 76

Morphological comparison of madtom catfish (*Noturus*) brains

Crager

***Autumn Goble, Dr. David J. Eisenhour, Mentor, Department of Biology and Chemistry, College of Science**

Madtom catfishes (genus *Noturus*) are small catfishes occupying streams, and usually hiding under rocks and other cover. They are the most diverse of North American catfishes, with over 30 species, but several are jeopardized, with some species possibly extinct. Our study examines the brain morphology of two madtom species, the Stonecat (*Noturus flavus*), and the Brindled Madtom, *Noturus miurus*), and compares that to the brain morphology of another catfish species, the Channel Catfish (*Ictalurus punctatus*). The Channel Catfish is an active, open-water species that does not exhibit the cryptic (hiding) behavior of madtoms. We dissected four individuals of each species, measuring twelve brain landmarks of each. Our preliminary principle component analyses indicate that the madtoms had larger facial lobes and smaller cerebellums, consistent with ecological traits of increased reliance on chemosensory clues, but reduced swimming abilities. Also, the madtoms had large cerebrums, the significance of which is unclear, but again may relate to increased chemosensory function.

P - 77

Water quality factors affecting Blackside Dace (*Chrosomus cumberlandensis*) and Cumberland Arrow Darters (*Etheostoma sagitta*)

Crager

+Brandon Yates, Michael Compton, Dr. David J. Eisenhour, Mentor, Department of Biology and Chemistry, College of Science

We assessed the relationship of water quality with presence of two fish species, the federally threatened *Chrosomus cumberlandensis* (Blackside Dace, BSD), and the rare *Etheostoma sagitta* (Cumberland Arrow Darter, CAD) in 47 randomly chosen sites in headwater streams of the upper Cumberland River drainage in Tennessee. The fish assemblage at each site was assessed using a backpack electrofisher to sample 12 equal-sized plots. Of the 47 sampled sites, BSD were detected in plots of five sites, and CAD were detected in plots of 15 sites. Fish abundance and species richness varied from no fishes in several sites up to a site with 237 individuals and 15 species. A significant ($p < 0.05$) relationship was found between BSD presence and dissolved PO_4^{3-} , dissolved NO_3^- , and total dissolved solids. Conductivity and dissolved SO_4^{2-} had a significant relationship with CAD presence. In summary, these rare fishes are associated with streams which have relatively low conductivities, sulfates, and total dissolved solids. High levels of these are associated with resource extraction (e.g., mining, logging), supporting the idea that conservation efforts should focus on reducing or preventing watershed disturbance in regions still supporting these fishes. This research was funded by a grant to DJE from the United States Fish and Wildlife Service.

P - 78

Introduction to paleontology research through the Boudreaux Bend Project

Crager

****Jonathan D. Eisenhour, *Abraham S. Mollett, Dr. Jen O'Keefe, Mentor,
Department of Earth and Space Science, College of Science***

Paleontology is one of the most integrative of the geosciences, and relies on heavily on biology and chemistry during modern research endeavors. The Boudreaux Bend Project is no exception. New undergraduate research fellows working on the project spend on average six months learning the basics before progressing to data generation. To date, we have learned how to geological field work and to collect column samples of sediment from stream bank exposures. In the process we learned a lot about stream and terrace geomorphology. From these column samples, we learned how to extract pollen, spores, and the remains of other. This is accomplished via both chemical and mechanical processes that are very exacting – the risk of contamination of your sample, and having to start the process over is very high. We have learned how to analyze the material we have obtained, from scanning slides and making photographs, to identifying what we see, and beginning to make quantitative accounts. Seven months into our tenure as undergraduate research fellows, we are beginning to take an active role in reading the history of our region from the sediments under our feet. This poster provides an overview of the techniques we have learned.

P - 79

The effects of feedback on mastery of a new motor skill: A pilot test

Crager

****Joanna Guerrant, Dr. Gina Blunt Gonzalez, Mentor, Department of Kinesiology,
Health, and Imaging Science, College of Science***

Mastering physical movement occurs through motor learning and experience. Motor development is needed for successful acquisition of sport and other physical skills. A lack of motor skills has been associated with decreased physical activity later in life, which has been linked to a variety of hypokinetic diseases. The current pilot experiment examined the differences in how college age subjects best learned a new motor skill. Twelve subjects were video recorded while performing 20 trials of a martial arts style side kick and were given visual, verbal, or no feedback. Subjects were also asked to report their self-efficacy and give qualitative feedback at the end of the study. The number of attempts to mastery were recorded along with self-efficacy scores and qualitative feedback responses. Results examined mastery differences among the feedback groups. The purpose of the pilot research was to refine experimental procedures for a larger scale study on a wide range of ages from children to older adults. This research was funded with the MSU Undergraduate Research Fellowship.

P - 80

The effect of hip rotation on leg cycling anaerobic power

Crager

****Andrea Foster, *Keisha Crum, *Dylan Rich, *Luke Humphreys, Carl Pickering,
Dr. Gina Blunt Gonzalez and Dr. Manuel Probst, Mentors, Department of
Kinesiology, Health, and Imaging Science, College of Science***

The purpose of this study was to determine any added effect of increased hip rotation on leg cycling anaerobic power during the Wingate Anaerobic Power test. Following a brief warm-up, 20 subjects performed a 30 second all-out cycling test on a Monark 874E cycle ergometer against a set load using a standard cycling technique. In a counter-balanced design, subjects repeated the test, however, at the 15 second mark, subjects were asked to increase hip rotation for the remaining 15 seconds. The SMI Power program was used to calculate peak and mean anaerobic power as well as fatigue index. A dependent t-test was used to determine differences between the two groups.

P - 81

Model behavior: The mathematics behind three-dimensional modeling and animation

Crager

****Kathryn Duff, Dr. Vivian Cyrus, Mentor, Department of Mathematics and Physics, College of Science***

Have you ever wondered what goes on “behind the scenes” of your favorite animated movies? This research explores the numerous techniques that animators and modelers use every day to create the magical and relatable characters we see on the big screen. We begin by examining the method of Catmull-Clark subdivision and how it is used to create smooth and lifelike three-dimensional models. Then this method is implemented in the configuration of an original model. In addition, the process of simple animations such as facial expressions and a walk cycle are explained and demonstrated using this original model.

P - 82

Mathematics and origami: Unfolding mathematical “impossibilities”

Crager

****Dustin T. Adams, Dr. Kathryn M. Lewis, Mentor, Department of Mathematics and Physics, College of Science***

While paper folding is quite popular throughout the world, the true origin of origami is thought to be China. Origami is an interesting form of art with an actual base in math, in which recent breakthroughs have revealed that origami can be used to obtain geometric constructions that are impossible by using merely a straightedge and compass. Little has been published on connecting the math and breaking down the axioms to the origami that allows constructions to classic problems, such as trisecting an angle or doubling the cube. There are published constructions that use only paper folding to trisect an angle and double a cube, which support the use of origami in making otherwise “impossible” constructions possible and the use of the origami axioms in order to complete them. This poster will compare and contrast origami and geometry, while dissecting the axioms of origami and determining which make certain constructions possible that are not possible using only a straightedge, compass, and Euclidean geometry, and why.

P - 83

Studying solar limb darkening in H-Alpha with a Coronado PST

Crager

****Jessica N. Farrell, Dr. Jennifer Birriel, Mentor, Department of Mathematics and Physics, College of Science***

Solar limb-darkening refers the optical effect observed in the Sun (and other stars) in which the brightness of the disk is greatest at the center and decreases moving outward to the limb of the disk. We use a Coronado Personal Telescope (PST) to image the disk of the Sun to study this effect. We take photographs of the sun using a cell-phone camera, with both a JPEG and RAW outputs, and the images are analyzed used free online software. We measure the brightness as a function of position on the solar disk and compare results to the known wavelength dependent relationship. We conclude with a brief discussion of how this can be used as an excellent advanced physics lab experiment that can be done during the day: it allows students to learn the basics of astronomical imaging and image processing using their own cellular devices and software.

P - 84

The mechanics of the putting stroke in golf

Crager

****Logan Hogge, Dr. Ignacio Birriel, Mentor, Department of Mathematics and Physics, College of Science***

In this project, the mechanics of the putting stroke was analyzed by building a “simple” putting machine and using analytical mechanics as well as experimental data to study a putting stroke. The putting machine was built with metal products and created so that the putter would hinge from the end of the grip. An adjustable angular measurement system was included to ensure the putter was drawn back the same amount giving a consistent stroke each time. Theoretical calculations were made to predict how far the ball would roll on a frictionless surface. The calculations were made using the work-energy function of simple harmonic motion in a pendulum. Data was collected on a putting green and also on a smooth carpet to assure that the putting machine was both precise and accurate from a center line displacement. Then data was collected on a hardwood basketball court to reduce friction from the experimental data to compare to the theoretical model. The distance the ball had rolled in a certain amount of time was recorded for three different angular measurements. In this presentation, the theoretical model will be compared to the experimental data to see how much friction will impede the balls motion.

P - 85

A study of student learning comparing hands-on with traditional mathematics instruction with 10th grade high school students

Crager

****Chelsea Brown, Dr. Robert Boram, Mentor, Department of Mathematics and Physics, College of Science***

This study takes a look at two teaching strategies, hands-on versus traditional to compare their effectiveness in the classroom. The research was conducted at a county high school in central Kentucky that serves a largely rural population. The subjects of the research were four 10th grade algebra 2 classes, two classes experienced the hands-on approach and two experienced a more traditional approach. Each class was taught the same content; sine, cosine, and tangent. All the classes shared common learning targets and assessments.

P - 86

Smoking cessation in acute care facilities

Crager

****Erica Creech *Harold McCarty *Baylee Newsome *Sydney Raulinaitis, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

Tobacco use is associated with significant morbidity and mortality rates in the United States. According to the CDC, smoking kills more than 480,000 Americans each year on average. Unfortunately many patients still smoke while admitted to acute care facilities. Research has shown that these patients are significantly under-educated on smoking cessation and the detrimental effects of smoking on themselves and others. This addiction can lead to serious, if not fatal, repercussions for the client. Although many hospitals have adopted a smoke-free policy, many patients remain non-compliant with those policies. The client's care may possibly be disrupted due to their absence when they leave the premises to smoke. In addition, their safety is also a concern. The purpose of this study is to develop educational criteria for nurses to implement with the desired outcome of reducing smoking rates and increase the number of those who are thoroughly educated. The objectives will be met by working with nurses and patients first hand and reviewing what strategies have been put forth, how well they work, and if there are any other actions that can be implemented in order to better the rates of patients who quit smoking.

P - 87

Intra-hospital pneumatic tube systems: Improving patient care through technological advancement

Crager

****Chris Paul, *Kyle Smith, *Terri Spencer, *Harley Weems, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

The 2016 National Patient Safety Goals set by The Joint Commission identify the following goals: using medications safely and improving communication of important test results in a timely manner. According to a report from the U. S. Department of Health and Human Services, nearly 180,000 patient deaths are attributable to medical errors annually. Medication errors and the delay of lab specimen testing are potentially harmful to the overall health of patients admitted to the hospital; therefore, any significant and positive changes in the delivery of these items are seemingly beneficial to improvement in patient care. Creating an environment centered on effective and safe patient care is also an essential component of meeting Quality and Safety Education in Nursing initiative competencies. The purpose of this study is to explore the potential effects that an intra-hospital pneumatic tube system (PTS) has on improving medication delivery and administration, and to explore the potential benefits of improving the communication of lab specimen results to the healthcare team. A comparative field analysis of delivery times of the pharmacy and the laboratory will be performed based on Floor A without a PTS to Floor B with a PTS.

P - 88

Increasing documentation of decubitus ulcers upon admission

Crager

****Kelsey Horton, *Savannah Peterman, *Whitney Walters, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

The assessment and documentation of decubitus ulcers, also known as pressure ulcers, on admission to the hospital or unit floor continue to be an issue because nurses are neglecting to document skin assessment findings. This is occurring in a Central Kentucky healthcare facility despite adopted hospital protocols and policies to prevent this from happening. According to the National Pressure Ulcer Advisory Panel, hospital costs are increased approximately \$500-\$70,000 per individual pressure ulcer. In the U.S. overall, pressure ulcer care is approximately \$11 billion annually. The absence of pressure ulcer documentation on admission results in denial of hospital reimbursement by health insurance companies, leading to the loss of needed money for hospitals. Therefore, some of these costs could be deflected with proper nursing documentation on admission to the hospital. The purpose of this study is to investigate barriers of proper documentation of pressure ulcers on admission and develop a plan to improve problems with documentation. The method for this study is to conduct a qualitative survey on medical-surgical and critical care units among RN's. Enforcement of skin care policies that state when to assess and document findings will also be discussed.

P - 89

Ventilator care bundles and their effectiveness in reducing the incidence of ventilator-associated pneumonia in intensive care units

Crager

****Hannah Sullivan, *Chelsea Walker, *Jordan Kellough, *Krista Perkins, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

Ventilator associated pneumonia (VAP) is a common hospital-acquired infection acquired by patients on ventilator therapy. In an attempt to prevent this adverse event a ventilator care bundle (VCB) has been developed. The bundle includes strategies to prevent VAP such as: elevating the head of the bed 30 degrees, providing oral care every two hours, turning the patient every two hours, providing scheduled sedation vacations, and administration of peptic ulcer prophylaxis, and DVT prophylaxis. The purpose of this study is to determine if the correct use of VCBs decrease the incidence of VAP in ventilated patients. To investigate this, we will conduct a retrospective study that assesses the morbidity rate of ventilated patients that acquired VAP before bundles were implemented as well as the morbidity rate of ventilated patients that acquire VAP after the guidelines of the bundle are properly enforced. The anticipated outcome of this study is a negative correlation between strict implementation and adherence to the specified bundle checklist and the incidence of VAP.

P - 90

Improving patient satisfaction through nurse's communication

Crager

****Callie Keylor, *Celena Moore, *Emilee Hitt, *Mackenzie Butler, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

Current patient satisfaction scores seem to indicate that efforts to improve communication between nurses and patients are needed. When patients at a hospital in central Kentucky were asked if their nurses always communicated well, 80% agreed compared to the national average of 81%, meaning about 1 in 5 are not satisfied with communication about their healthcare. Some nurses discuss patient's care and treatment plan while at the bedside or in the patient room, but many converse in the hallway or in the nurse's station. It seems that if nurses and patients were both involved in discussions regarding their progress, treatment and care, patients would be informed in a more in-depth, timely manner. The purpose of this study is to identify and evaluate strategies to improve patient satisfaction scores regarding nurse and patient communication. The method used to gather information about patient satisfaction will be to survey patients regarding their communication experience with nurses. Information and data obtained from this study will be used to aide in identifying deficiencies and create strategies to decrease communication gaps between nurses and their patients. As a result of this study, we would like to see an increase in patient satisfaction scores regarding communication between the nurse and patient. Recommendations for improved communication policies will be addressed.

P - 91

The effect of bedside report on patient outcomes

Crager

****Zachary Bailey, Emily Blair, Brittany Cochran, Samantha Kremser, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

Change of shift report allows communication of patient data from one nurse to another and is a vital part of continuity of patient care. This report can occur at a nurse's station, in the hallway, or at the patient's bedside. The change of shift report is vital because it allows nurses to make informed clinical decisions and prioritize patient care. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has identified communication failures as the leading cause of sentinel events in the United States and lists shift report as a contributing factor. Since patient care relies tremendously on this form of nurse communication, the purpose of this field study is to determine which form of report yields better patient outcomes. A comparison will be made between patient satisfaction survey scores, incidence of falls, and incidence of medication errors in bedside report versus report elsewhere. Our expectation is that patient outcomes will be improved when report is exchanged at the bedside as opposed to other locations such as the nurse's station, the hallway, or over the phone.

P - 92

Hospital nurse staffing and patient satisfaction

Crager

****Teresa Dousay, *Bailey Childers, *Madison Cole, *Tara Hill, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

The issue of nursing care and patient staffing ratios is not new to medical-surgical nurses. It took national importance in 1996 with the release of an Institute of Medicine (IOM) report that evaluated nursing and patient safety. Patient's conditions have become complex and require more nursing attention than before, yet, hospitals have become more economically focused and business oriented. Hospital nurse staffing is a matter of major concern because of the effects it can have on patient safety and quality of care. Nursing-sensitive outcomes are one indicator of quality of care and may be defined as "variable patient or family caregiver state, condition, or perception responsive to nursing intervention". Most research has focused on adverse rather than positive patient outcomes for the simple reason that adverse outcomes are more likely documented in the medical record (Stanton, 2004, p. 2). This project focuses on a positive nursing sensitive outcomes that deal with patient perception and satisfaction towards care in relation to nurse-to-patient ratios. The purpose of this paper is to determine whether there is a significant relationship between the nurse-to-patient ratio and patient satisfaction towards care outcomes. The ideal outcome will show a positive relationship between the two variables.

P - 93**Documentation of the use of chlorhexidine (Hibiclens) in patients with central venous catheters****Crager******Britney Catron, *Kaleigh Hobbs, *Margaret Miles, *Danielle Palmer, Chad Rogers, MSN, RN, Mentor, Department of Nursing, College of Science***

A central venous catheter (CVC) is an intravenous port placed in a large vein. CVCs are used for administration of fluids, medications, nutrition, and the drawing of blood specimens for laboratory testing. According to the Joint Commission on Accreditation of Healthcare Organizations, "CVCs are the most frequent cause of health care-associated bloodstream infections." A central Kentucky Hospital reports documentation of chlorhexidine (Hibiclens), a chemical used to kill harmful organisms, isn't being documented during CVC care. The objective of this project is to (1) determine causes for the lack of documentation of Hibiclens in patients with central lines, and to (2) differentiate the reasons for these causes. A written survey will be completed by staff to identify reasons Hibiclens isn't being documented. From these results, a review of the documentation system and of the central line care will be performed to differentiate the causes. After all data is collected, an analysis will be performed to code the data and draw conclusions as to why there is minimal documentation. Hypothetical outcomes include no use of Hibiclens related to time deficit or lack of education; no documentation related to unclear documentation responsibility, lack of time, and inadequate education regarding the documentation system.

P - 94**2016 regional brain drawing contest****Crager******Tori Dennie, Zachary Abbott, Hannah Howard, Rachel Hudson, Terra Riggs, Madison Hammons, Madeline McCloud, Amy Florence, Dr. Ilsun M. White, Mentor, Department of Psychology, College of Science***

The Brain Drawing Contest is a part of the Regional Brain Awareness Program, which aims to enhance awareness of brain health to students in our community. Each year, students (K-12) use specific themes to explain their drawings, focusing on: how their brain helps them (K-1st grade), how their brain is special (2nd-4th grade), brain fitness (5th-6th grade), comparing their brain to objects (7th-8th grade), and brain health (9th-12th grade). Judging criteria were based on originality, scientific accuracy, and overall design. This year, over 650 entries were received. Preliminary judging was done by student judges. Award judging was done by a panel of award judges, including 7 faculty members and a community representative. This event was sponsored by the Morehead State University, Rowan County Board of Education, Dana Foundation, National Institute of Health, and Society for Neuroscience.

P - 95**Brief exposure to ecstasy in adolescence produces social withdrawal in rats****Crager******Madeline McCloud, Hannah Howard, Madison Hammons, Dr. Ilsun White, Mentor, Department of Psychology, College of Science***

In humans, there is a close link between drug abuse and impaired emotion. For example, recreational drugs such as ecstasy and phencyclidine (PCP) during adolescence may increase aggression and the likelihood of drug use in adulthood. Previously, we reported that a brief exposure to PCP during adolescence impairs high-order learning in adulthood. The present study examined the effects of ecstasy and PCP on aggression and social withdrawal in adolescent rats. Fifty-six Wistar rats were housed in group cages (4 rats/cage), with free access to food and water. On postnatal day 50, rats received four injections of ecstasy (9mg/kg), PCP (9mg/kg), or vehicle, and their behavior was examined in an open-field 3-7 days after the last injection. Ecstasy produced a marked social withdrawal, but did not produce aggression, whereas PCP failed to affect both. Ecstasy is a serotonin agonist, whereas PCP is a glutamate antagonist. Thus, our results suggest that dysfunction of serotonergic and glutamatergic systems may exert differential effects on affective state, and that such changes may depend on brain maturity and drug-induced neurotoxicity. Currently, we are testing longer-term behavioral changes. Madeline McCloud is a student at the Craft Academy. Supported by NIH Grant DA015351.

P - 96

Frequent drug abuse impairs the ability to discriminate negative emotion

Crager

***Madison Hammons, Dr. Ilun M. White, Mentor, Department of Psychology, College of Science**

Our ability to recognize emotional expressions is an adaptive behavior in a range of social situations. Psychological studies indicate that inaccuracy in recognition of facial expressions is closely associated with psychiatric disorders. Previously, we reported that alcohol impaired the ability to discriminate negative emotions (sad and angry). In this study, we examined the effects of drug use on discrimination of emotions, focusing on opiates and marijuana. Opiates suppress brain function through mu-receptors, whereas marijuana exerts mild analgesic and hallucinogenic effects through cannabinoid receptors. Overall, frequent users (>3 times/week) of opiates or marijuana made more errors, compared to controls. Moreover, accuracy of discrimination depended on emotion category, with a greater accuracy for happy expressions than for angry or fearful ones. Our data suggest that frequent drug use may impair the ability to process negative emotions, reducing discrimination of emotional expressions. Further study on long-term use of these drugs on emotion recognition is warranted. Madison Hammons is a student at the Craft Academy. Supported by NIH Grant DA015351.

P - 97

An exploratory analysis of help seeking after romantic breakup by source and cause among breakers and breakees

Crager

***Cheyenne N. Profitt, Dr. Laurie Couch, Mentor, Department of Psychology, College of Science**

Romantic dissolution can lead to psychological concerns for those who are “broken up with” (breakees) and those who break up (breakers) alike; however, little is known about factors leading to help seeking after breakups. It was hypothesized that certain causes of breakups and one’s initiator status (breaker/breakee) would impact help seeking, and friends and family would be sought most as sources of help. As survey of 235 college students was conducted. Participants provided descriptions of their worst breakup experiences and indicated the extent to which they sought help from eight types of helpers. Analyses of the data revealed that friends and family were utilized more than other helpers after breakup, and that some reportedly were caused by cheating (49.4%), insecurity (42.6%), disinterest (35.7%), controlling behaviors (8.5%), and/or multiple causes (10.2%). A series of two-way ANOVAS to determine if these causes each were related to help seeking for breakers vs. breakees suggested that help-seeking was unrelated to cheating, insecurities, disinterest, and controlling behaviors, or breaker/breakee status alone; however, when multiple causes were mentioned breakees were significantly more likely to seek help than without multiple causes. Multiple causes did not impact the help seeking of breakers.

P - 98

An investigation of relationship-contingent self-esteem and post-breakup psychological growth

Crager

***Macy T. Kootz, Dr. Laurie Couch, Mentor, Department of Psychology, College of Science**

Tying one’s self-worth to the success of relationships, known as relationship-contingent self-esteem (RCSE), is a risk factor for poor adjustment when relationships dissolve, but greater initial suffering after stressful events like breakups has been shown to lead to later psychological growth. Thus, it was hypothesized that, independent of the time since breakup, those high in RCSE would experience more post-traumatic growth from their breakup than those with low RCSE. To test the hypothesis, college students completed an online survey about their worst breakup, which included measures of RCSE and growth, as well as demographic questions and a question about who initiated the breakup. Then, a three-way ANCOVA was conducted with RCSE level (low vs. high), breakup initiator status (breaker vs. breakee), and sex as the independent variables, post-breakup growth as the dependent variable, and time since breakup as the covariate. Results indicated that only RCSE was related to posttraumatic growth. Specifically, as hypothesized, those with high RCSE reported greater post-breakup growth than those with low RCSE. Clinical implications and suggested future studies will be discussed. This research was funded with an Undergraduate Research Fellowship.

P - 99

Does the type of betrayal matter?

Crager

**+Sarah Whitaker, Dr. Laurie L. Couch, Mentor, Department of Psychology,
College of Science**

Five types of romantic betrayal (e.g., via infidelity, abandonment, betrayal of information, failure to respect feelings, and illegal offenses) were compared to determine whether they led to different levels of emotional and physical suffering (i.e., depression, trauma reactions, and psychosomatic symptoms). As part of a larger study, victims of betrayal (n = 118) completed personality measures and were interviewed about their worst experiences of being betrayed by a romantic partner. After controlling for a personality characteristic known as BIS (i.e., one's general sensitivity to punishment), results of a MANCOVA suggested that the various types of betrayal overall lead to similar levels of mental health concerns. However, subsequent univariate analyses did reveal that victims of betrayals that also are illegal offenses tended to have greater hyperarousal (i.e., a symptom of trauma) than others. Results will be discussed in terms of their implications for therapy with clients who are victims of betrayal.

P - 100

Getting over breakup: An investigation of coping and relationship-contingent self-esteem

Crager

***Kimberly M. Obermayer, Dr. Laurie L. Couch, Mentor, Department of Psychology, College of Science**

Coping with stressful experiences like romantic breakups may be more or less adaptive, depending on the strategies that are used. It was hypothesized that one's selection of coping strategies may be impacted by personal variables, such as relationship-contingent self-esteem (RCSE; the extent to which self-worth is based on the quality of close relationships), because breakups should threaten individuals with high RCSE to a greater extent than those with low RCSE, leading to the use of more maladaptive strategies to deal with their resulting "desperate" emotional state. To test the hypothesis, 100 college students completed an online survey which measured their levels of RCSE and their use of 14 different coping styles after a significant romantic breakup. A MANOVA then was conducted with RCSE level (high vs. low) as the independent variable and coping strategies as the dependent variables. Results indicated that those high in RCSE reported using maladaptive strategies like denial, venting, behavioral disengagement, and self-blame more than those low in RCSE, but they also used some generally adaptive strategies (e.g., emotional- and instrumental-support seeking, as well as planning) to cope with their breakups more than those low in RCSE, as well.

P - 101

Personal characteristics associated with tendencies to betray close others

Crager

***Te'a E. Johnson, Dr. Laurie L. Couch, Mentor, Department of Psychology,
College of Science**

It is commonly assumed that those who tend to betray others frequently may have different personalities/attitudes than those who don't. Few studies have sought to empirically assess such differences, but those which have done so (e.g., Orzeck & Lung, 2005) have offered some support for the claim. The present study sought to extend such work by asking 284 college students (54.2% men/45.8% women) to complete a survey. Participants completed measures of their tendency to betray close others, as well as several scales to measure personality/attitude characteristics (e.g., measures of extraversion, neuroticism, agreeableness, conscientiousness, openness, just world beliefs, moral standards, empathic distress, empathic concern, and sensitivities to reward and punishment). Those who were low, moderate, and high in their tendencies to betray were compared (via a MANOVA) to determine if they differed on the characteristics. Results indicated that those who tend to betray others often reported greater neuroticism, empathic distress, and punishment sensitivity, as well as lower agreeableness, conscientiousness, and moral standards, than those who betray others less often. Group differences also were observed in levels of extraversion; however, no differences were found between groups for openness, sensitivity to reward, empathic concern, or beliefs in a just world.

P - 102

Inter-age rejection: Anxiety, anger, and stereotype activation?

Crager

****Kristina Deem, Ashley Ball, Megan Conn, Ashley Duvall, Pam Lacy, Brittney Monn, Jesse Tipton, Dr. Lynn Haller, Mentor, Department of Psychology, College of Science***

Individuals can be rejected by various types of people. Some rejection research shows that characteristics of rejecters can influence how people react to rejection differently (Butz & Plant, 2006). The current study sought to determine if age is a characteristic that results in different rejection reactions. Using an anticipated interaction, the implications of rejecters' age characteristics for cognitive reactions (age stereotype activation) and emotional reactions (heightened anxiety and anger) were examined. Results indicated that our manipulation of rejection was successful, but that age of rejecter did not significantly affect emotions or cognitive reactions differently. The study suggests that age-related rejection is different than other types of rejection.

P - 103

Body image and sexual health among college students

Crager

****Zainab Anwar, Gabriela L. Alshafie, Tara Holaday, Mentor, Counseling and Health Services, and Dr. Timothy S. Thornberry, Mentor, Department of Psychology, College of Science***

This study examined the relationship between body image and sexual health behaviors. It was predicted that female participants who reported never or sometimes engaging in safe sex practices would have higher body dissatisfaction scores than those who reported always engaging in safe sex practices and those who are not sexually active. However, we expected this trend to be reversed among male participants. Results indicate no significant relationship between body dissatisfaction and risky sexual behavior in either gender. However, women ($M = 4.03$, $SD = 1.11$) and men ($M = 3.13$, $SD = 1.01$) differ on overall body dissatisfaction, $t = 6.26$, $p < .000$. Furthermore, exploratory analysis suggests students are most comfortable talking to their friends about sexual health, and reported low levels of comfort talking to a Counselor or Mental Health Professional (19.7%). The findings suggest the health of the MSU student body could be significantly impacted by poor body image. Furthermore, results suggest communication between physical and mental health care providers is especially important when sexual health issues are central to client concerns. A focus on establishing a high quality referral process between physical health and mental health resources could be an important step toward improving student health.

P - 104

The impact of poor sleep on academic performance and mental health in college students

Crager

****Ashley N. Ball, * Brittney A. Monn, Adam R. Bocook, Dr. Timothy Thornberry, Mentor, Department of Psychology, College of Science***

Previous studies show that poor sleep can impact mental health and academic performance. However, few studies survey a rural college student population. This study examined the relationship between sleep behaviors and self-reported anxiety, depression, and GPA. Participants were recruited from a cloud-based subject pool and took part in an internet survey that gathered information about physical health, mental health, health behaviors, and health awareness. Within the public health survey are questions pertaining to sleep behaviors, anxiety, depression, and GPA. Participant responses on sleep-related items were combined to create a composite score indicating overall sleep quality. We hypothesized that there would be a significant negative correlation between overall sleep quality and self-reported symptoms of anxiety and depression. We also expect that poor overall sleep quality will correlate with GPA. The information gathered in this study can reveal how the sleep of Morehead State University students is affects their wellbeing and academic performance. Further research can identify the best ways to effectively treat students who are being negatively affected by their sleep behaviors. This research was funded by an MSU undergraduate research fellowship provided by the Appalachian Health and Research Center Research Seed Grant.

P - 105

Analyzing differences in observed child externalizing behaviors across states

Crager

****Adam R. Bocook, Shauntae Davis, Dr. Timothy Thornberry, Mentor, Department of Psychology, College of Science***

Research regarding children's externalizing problems tends to rely heavily on observational data and self-report ratings by the parent. Further, risk factors for externalizing problems may be associated with societal biases linked to children's behavior in the nation they reside (Lambert et al., 2001). Adults and families who reside in rural areas are said to hold more traditional views regarding children and their problems than their counterparts who reside in urban areas (Lambert et al., 1989). Little research, however, has taken into consideration the effect of regional location on externalizing problems. The main aim of this study is to provide baseline data for the implementation of programs for improving the mental health status of children in the Appalachian region of Kentucky. Data collected with non-referred families within the Appalachian region will be compared to both referred and non-referred families in southern Alabama and Florida. It is hypothesized that the frequencies of externalizing behavior problems from families in the Appalachian region of Kentucky will significantly differ from those in Alabama and Florida. This research was funded by an MSU undergraduate research fellowship provided by the Appalachian Health and Research Center Research Seed Grant.

P - 106

Associations between children's attachment and parenting at age 4 and 12 years

Crager

****Jessica L. Shepherd, *Ashley N. Hamm, Ashley N. Morris, Darrin Greene, Michelle Deaton, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science***

Attachment is the quality of the parent-child bond, which is reliably associated with parenting. There is a dearth of data beyond the preschool years however. The current study explores the connections among child attachment, observed parenting, and parental mind-mindedness (MM) (i.e., understanding of their child). We hypothesized that more securely attached children would have parents who were more sensitive in observed parenting and MM. This data was collected as part of an ongoing longitudinal study among families of moderate socioeconomic and psychological risk. Child attachment was assessed at age 4 via the Strange Situation separation-reunion procedure (Ainsworth et al., 1978). Parenting was rated during a game of ring toss using the Emotional Availability Scales (Briningen, 2000). When children were 12, 19 families returned. MM was rated from the Five Minute Speech Sample (Magana et al., 1986) using Meins and Fernyhough's scale (2010). The more securely attached a child was, the more likely his/her parent was to be sensitive, non-hostile, and mind-minded. Parents who were sensitive at age 4 made more positive MM comments about their children at age 12, whereas more hostile parents made more negative MM comments. This research was supported by MSU RCPC and KY NSF grants.

P - 107

Children's attachment, coping strategies, and socioemotional functioning

Crager

****Ashley N. Hamm, *Jessica L. Shepherd, Ashley N. Morris, Gabriela Alshafie, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science***

Emotion skills, acquired predominantly within the parent-child relationship, are an integral aspect of children's adjustment. The current study explores the connections among child attachment, child coping, and functioning. We hypothesized that more securely children would report more adaptive coping strategies and better adjustment. This data was collected as part of an ongoing longitudinal study among families of moderate socioeconomic and psychological risk. Child attachment was assessed at age 4 via the Strange Situation separation-reunion procedure (Ainsworth et al., 1978). When children were 12, 19 families returned. An interview (based on Gottman, Katz, Fainsilber & Hooven, 1997) was used to assess child approach to negative emotions. Children's descriptions of the coping strategies they used when angry and sad were rated as demonstrating avoidance and other coping strategies. Parents completed the CBCL (Achenbach & Rescorla, 2001) and children completed the Piers-Harris Self-Concept Scale-2 (Piers, Harris, & Herzberg, 2002). The more securely attached a child was, the less likely he/she was to utilize avoidance to cope with sadness. Using avoidance to cope with sadness was associated with increased parent-reported internalizing symptoms, whereas it was associated with less self-reported anxiety and greater popularity. This research was supported by MSU RCPC and KY NSF grants.

P - 108

Is amygdala critical for a successful performance on simple tasks?

Crager

***Zachary Abbott, Dr. Ilun M. White, Mentor, Department of Psychology, College of Science**

Scopolamine, a muscarinic antagonist, which is commonly used in animal models of Alzheimer's disease. Previously, we have shown that physiological stress worsens scopolamine-induced behavioral deficits in rats. The present study examined the role of the amygdala in scopolamine-induced deficits. Wistar rats were shaped to lever-press for a food pellet, then received amygdala lesions. Rats were trained to alternate fixed ratio 5 (FR5, 5-lever presses) and 20 (FR20, 20 lever-presses) to receive a 45 mg pellet. When their performance reached behavioral criteria, they received scopolamine or vehicle injection in a counterbalanced manner. Scopolamine markedly impaired the first response latencies in FR5 and FR20, with greater deficits during FR20. Amygdala lesion alone had little or no effect on response latencies on FR5 or FR20, suggesting that the amygdala is not required for successful performance in simple tasks. However, when combined with scopolamine, lesions produced greater behavioral deficits on response latencies on both tasks. Given that the role of the amygdala in stress-related disorders, present findings are consistent with our previous findings and provide the evidence that amygdala dysfunction would worsen behavioral deficits seen in Alzheimer's patients. Currently, we are examining the lesion effects following coadministration of scopolamine and stress hormone. This research was supported by MSU Undergraduate Research Fellowship and NIH grant DA015351.

P - 109

Analyzing the relationship between body image, depression, and anxiety in college students

Crager

***Mary Blanton, Shauntae Davis, Adam Bocook, Dr. Timothy Thornberry, Mentor, Department of Psychology, College of Science**

Wilson et al., (2012) found that women report greater stress and body image dissatisfaction than men and having a higher BMI was significantly associated with greater body image dissatisfaction in men and women. By investigating the effects that depression and anxiety have on body image dissatisfaction, the university may find better ways to help educate students about the potential dangers that are often associated with body image dissatisfaction, such as binge eating. This study examines the relationship between anxiety, depression, and body image satisfaction. Morehead State University students completed an online behavioral health survey that included questions from the Beck Depression Inventory, the Generalized Anxiety 7-item Scale, and questions concerning body image satisfaction. It is hypothesized that students with greater levels of body image dissatisfaction will present with greater levels of depression and anxiety. It is also predicted that female college students will have the greatest level of body dissatisfaction, along with anxiety and depression. This study aims to contribute to understanding the relationships between body image dissatisfaction, depression, and anxiety among rural college students. This research was funded by an MSU undergraduate research fellowship provided by the Appalachian Health and Research Center Research Seed Grant.

P - 110

Ethnic difference in the perception of negative emotion

Crager

+Kinetta N. Crisp, Dr. Ilun M. White, Mentor, Department of Psychology, College of Science

Our ability to recognize emotion is a socially advantageous adaptive skill. We examined the effects of ethnicity on recognition of positive and negative emotion, using two emotion tasks: the Diagnostic Analysis of Nonverbal Behavior (DANVA2), which consisted of four subsets with visual and auditory stimuli, comprised of majorly Caucasian adults and children; and the DANVA-2AA, which consisted of two subsets of stimuli with African American faces and voices. A total of 42 (15 African American; 27 Caucasian) college students participated in this study. Following presentation of each stimulus, the participants were asked to select one of four emotions: happy, sad, angry, or fearful. The ability to discriminate emotion was measured by accuracy. A drug survey was used to exclude participants with a history of drug use. Overall, compared to Caucasians, African-Americans made more errors in judging emotional expressions, particularly in the 'angry' category, less accurately than Caucasians did. Thus, African American participants showed no in group advantage in emotion discrimination. These findings suggest that overall; African Americans have a greater difficulty recognizing the emotions of both in group and out group members. A further study is warranted.

P - 111

Finding History: A curatorial analysis

Crager

****Dakota Goedel, Dr. Adrian Mandzy, Mentor, Department of History, Philosophy, International, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

In March of 2015 students from Morehead State University participated in a public history project surveying the Battle of the Crater. Fought on 30 July 1864, during the Siege of Petersburg, the Battle of the Crater is one of the most important events of the Civil War. The participation of African-American troops in the battle and the subsequent execution of black prisoners highlights the racial animosities that were the underpinning causes of this conflict. MSU students worked with members of the Battlefield Restoration and Archaeological Volunteer Organization (BRAVO) and staff of the Petersburg National Park to document the level of integrity of the archaeological resources and examine how far the Union troops advanced on 30 July.

The results of our research were spectacular and we recovered approximately 750 artifacts. These finds were brought back to Morehead where they were studied during the current academic year. As we have now completed the physical analysis of the artifacts, we will share our results through a museum display and a series of talks to be held on Saturday, 23 April at the Camden-Carroll Library. This ongoing research was made possible through the support of an undergraduate research fellowship and the library.

P - 112

Organizing the South: Progressive activism in America's most conservative region

Crager

****Tracy Blevins, Dr. Bernadette Barton, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

The American South is an area that has been predominantly influenced by religious fundamentalism and conservative politics. However, some Southerners challenge the nearly homogeneous culture in an attempt to upset the status quo. This research consists of interviews with young people (aged 18-30) in the South who are involved in activism or organizing in the region. It explores the elements of successful, and unsuccessful, progressive political and social organizing in Appalachia and the South. This research was supported by an undergraduate research fellowship.

P - 113

Worthiness of developmental math courses

Crager

****Janie L. Knell, Dr. Lloyd R. Jaisingh, Mentor, Department of Mathematics and Physics, College of Science***

Developmental math courses were created to help entering college/university students get to the level of preparation for their first college level math class for those who need remediation. After implementation, the developmental courses were accepted as being helpful, with little research being done into whether or not the courses were doing the job in preparing students, or if the method of teaching had any influence on the students' successes and rates of graduating. There has also been little research done in how different variables such as ACT Math scores, Age, Gender, etc. have on the success for the students taking developmental courses, and how likely they are to graduate, having enrolled into these courses during their programs. Even less research has been done into the courses being taken at Morehead State University, specifically the courses of Math 091, Math 093, and Math 152. This study, done for Senior Capstone Thesis, filled in these gaps by showing which variables are the better indicators of predicting success or graduation for these three courses.

2015-2016

Recipients of Undergraduate Research Fellowships

Morehead State University supports the initiative for students to engage in research, scholarship, performance activities and creative works. Listed below are the 2015-2016 awardees and their mentors.

COLLEGE OF BUSINESS AND TECHNOLOGY

Student URF	Class	Department	Mentor (s)
Erica Blair*	So.	DPMG	Greg McBrayer
Jonathon Byrd*	Sr.	DCIS	Shahrokh Sani
Benjamin Cain*	Jr.	SCBA	Johnathan Nelson
Adolfo Enrique Samudio Cano*	Sr.	DETM	Jorge Ortega-Moody
Asim Chaudhry	Jr.	DCIS	Ashraf Aly
Waylan Coffey*	Sr.	SCBA	Janet Ratliff
Seth Creech*	Sr.	DCIS	Ashraf Aly
Andrew Davis	Jr.	DETM	Hans Chapman
Tyler Davis*	So.	SCBA	Steve Chen
Steve Easterling*	So.	DETM	Sanjeev Adhikari
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*presenting at the 2016 Celebration of Student Scholarship

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