

# Celebration of Student Scholarship

## April 24, 2013

|                  |   |
|------------------|---|
| Program Overview | Adron Doran University Center   |
| 8:00 – 8:55 AM   | All student scholars and faculty mentors are to register and pick up programs and name badges (3 <sup>rd</sup> floor ADUC), Posters should be set-up at this time and PowerPoints loaded. |
| 9:00 – 10:15 AM  | Oral Presentations (301, 302, 312, Riggle & Commonwealth)   |
| 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  |
| 3:00 – 5:00 PM   | Reception (all invited)   |
| 3:30 – 4:00 PM   | Gallaher Memorial Music Performance   |
| 4:00 – 4:30 PM   | Awards  |
| 4:30 – 4:45 PM   | Removal of Posters  |

|                                 |          |
|---------------------------------|----------|
| <b>Special Recognition.....</b> | <b>2</b> |
| <b>Welcome Statements.....</b>  | <b>3</b> |

- Wayne Andrews, President
- Karla Hughes, 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 Public Affairs
- Cathy Gunn, Dean, College of Education
- M. Scott McBride, Dean, Caudill College of Arts, Humanities and Social Sciences
- Roger McNeil, Dean, College of Science and Technology

|  |           |
|--|-----------|
| <b>Oral Presentation Abstracts.....</b>                              | <b>5</b>  |
| <b>Poster Presentation Abstracts.....</b>                            | <b>27</b> |
| <b>Recipients of Undergraduate Research Fellowships 2012-13.....</b> | <b>66</b> |
| <b>Student Index .....</b>   | <b>70</b> |

TABLE OF CONTENTS

## Special Thank You to the Following:

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*Murray Bessette*      *Gina Gonzalez*      *Janet Ratliff*  
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*Laurie Couch*      *Philip Krummrich*      *Paul Steele*  
*Mark Deaton*      *M. Scott McBride*

##### Concurrent Session Moderators

*Dora Ahmadi*                      *Bruce Mattingly*  
*Robert Albert*                      *M. Scott McBride*  
*Joy Gritton*                      *Roger McNeil*  
*Philip Krummrich*                      *Thomas Pannuti*  
*Lesia Lennex*                      *Ahmad Zargari*

##### Judges

|                           |                          |                            |                          |                          |
|---------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| <i>Lola Aagaard-Boram</i> | <i>Tim Conner</i>        | <i>April Haight</i>        | <i>Jim Masterson</i>     | <i>Gilbert Remillard</i> |
| <i>Dora Ahmadi</i>        | <i>Christina Conroy</i>  | <i>Lynn Haller</i>         | <i>Greg McBrayer</i>     | <i>Randy Ross</i>        |
| <i>Kathleen Arnn</i>      | <i>Louise Cooper</i>     | <i>Barton Hanna</i>        | <i>Janet McCoy</i>       | <i>Greg Russell</i>      |
| <i>Elizabeth Ash</i>      | <i>Marcia Cooper</i>     | <i>Connie Hardesty</i>     | <i>Elizabeth McLaren</i> | <i>David Saxon</i>       |
| <i>Ray Bailey</i>         | <i>Greg Corso</i>        | <i>Flint Harrelson</i>     | <i>Troy Meadows</i>      | <i>Edna Schack</i>       |
| <i>Bernadette Barton</i>  | <i>Laurie Couch</i>      | <i>Patricia Harrelson</i>  | <i>Chris Miller</i>      | <i>Mark Schack</i>       |
| <i>Sue Beck</i>           | <i>John Curry</i>        | <i>Shante Hearst</i>       | <i>Fatma Mohammed</i>    | <i>Dayna Seelig</i>      |
| <i>Royal Berglee</i>      | <i>Jackie Darling</i>    | <i>Pamela Holbrook</i>     | <i>Johnathan Nelson</i>  | <i>Duane Skaggs</i>      |
| <i>Murray Bessette</i>    | <i>Mark Deaton</i>       | <i>Dawn Hood</i>           | <i>Carole Olson</i>      | <i>Lola Smith</i>        |
| <i>Ignacio Birriel</i>    | <i>Lynda Donathan</i>    | <i>Jami Hornbuckle</i>     | <i>David Olson</i>       | <i>Matt Sparks</i>       |
| <i>Jennifer Birriel</i>   | <i>David Eisenhour</i>   | <i>Lloyd Jaisingh</i>      | <i>Elizabeth Perkins</i> | <i>Paul Steele</i>       |
| <i>Richard Blanton</i>    | <i>Heba Elgazzar</i>     | <i>Yvette Kell</i>         | <i>Christie Perry</i>    | <i>Tina Stevens</i>      |
| <i>Robert Boram</i>       | <i>Christine Emrich</i>  | <i>Shari Kidwell</i>       | <i>Roslyn Perry</i>      | <i>Sherry Stultz</i>     |
| <i>Ned Breschel</i>       | <i>Mike Esposito</i>     | <i>Stephanie Webb King</i> | <i>Jeanne Petsch</i>     | <i>Ilsun White</i>       |
| <i>Amy Brown</i>          | <i>Jeff Fannin</i>       | <i>Bev Klecker</i>         | <i>Phil Prater</i>       | <i>Sarah Wilson</i>      |
| <i>Bob Bylund</i>         | <i>Cynthia Faulkner</i>  | <i>Kathy Leiws</i>         | <i>Kent Price</i>        | <i>Dustin Withrow</i>    |
| <i>David Campbell</i>     | <i>Cyndi Gibbs</i>       | <i>Krysl Lynam</i>         | <i>Daryl Privott</i>     | <i>Chavilah Witt</i>     |
| <i>Katy Carlson</i>       | <i>Wilson Gonzalez-</i>  | <i>Barbara Lyons</i>       | <i>Becky Purdy</i>       | <i>Carol Wymer</i>       |
| <i>Duane Chappell</i>     | <i>Espada</i>            | <i>Bob Maras</i>           | <i>Sherif Rashad</i>     | <i>Scott Wymer</i>       |
| <i>Douglas Chatham</i>    | <i>Wretha Goodpaster</i> | <i>Tyler Mark</i>          | <i>Ann Rathbun</i>       | <i>Cap Yess</i>          |
| <i>Matt Collinsworth</i>  | <i>Joy Gritton</i>       | <i>Deanna Mascle</i>       | <i>Brian Reeder</i>      | <i>Yuqiu You</i>         |

*Welcome to the Eighth Annual Celebration of Student Scholarship at Morehead State University. Each year, our University family gathers to recognize the tremendous efforts of our students in research, scholarship and creative productions. It is a time when we can all pause to reflect on the outstanding efforts of the community of scholars that empowers our diverse population of students to reach their educational goals.*



*To ensure the optimal environment for learning, it has always been our tradition at Morehead State University to combine 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. Our 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. By attending this showcase, you provide 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!*

*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 ever more challenging world.*

**Dr. Wayne Andrews, President**

*I am pleased to be part of this great event in the Celebration of Student Scholarship. While the learning that takes place through structured classroom activities is important, the participation in research and creative activity provides an opportunity for students to transition from learner to scholar. Once an individual has been involved in seeking answers to research questions or in creative expression based on theories and principles, they approach learning from a different perspective.*



*For many of these students, it has been the opportunity to discover their own abilities in the application of knowledge. And, through the work of the faculty mentor(s), they have been challenged to look beyond the security of their knowledge base to ask "what if" or "why?" This process has awakened the desire for some students to move beyond an undergraduate degree to pursue advanced degrees and opened a new world of discovery to them.*

*This Celebration is an excellent illustration of the integration of scholarship, teaching and learning. I wish to thank everyone who has been involved in planning and implementing the projects that have contributed to the intellectual and creative development of our students. I congratulate the students who accepted the challenge to engage in the role of student scholar; to stretch their minds and talents; and to become role models for their peers. I hope you enjoy the events that have been planned in Celebration of Student Scholarship.*

**Dr. Karla Hughes, Provost and Vice President for Academic Affairs**



*Our Annual Celebration of Student Scholarship provides a superb stage for students and their faculty mentors to spotlight Morehead State University as a premiere destination for all who desire a world-class education that is catalyzed by the dedicated mentorship of a world-class faculty. Involvement in research and creative endeavor, which involves active learning outside of the traditional classroom has been proven time and again to empower students to better analyze problems and synthesize solutions. Clearly, their participation helps to better prepare them for productive careers and leadership in their fields, as well as to be well-informed, enthusiastic contributors to an ever-changing 21<sup>st</sup> century society. I congratulate our students and faculty on their 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 Public Affairs**



*This Celebration Week showcases MSU's students - their talents, their enthusiasm, and evidence of their research projects. Through their experiences as undergraduate fellows, these teacher candidates learn the discipline of research and we believe the excitement and professionalism as student researchers infuses the classroom at the undergraduate level and then carries into the P-12 classroom. The College of Education faculty and staff are proud of these students as they engage in creativity and problem solving.*

**Dr. Cathy Gunn, Dean, College of Education**

*The faculty and staff within the arts, humanities, and social sciences applaud the focus and priority placed on learning that brings faculty and students together as collaborators in research and creative productions. To be sure, an educational curriculum based upon engaged scholarship enhances a student's entire academic experience by deepening scholarly understandings, facilitating partnerships in practice and advancing interdisciplinary insights. With this annual event, Morehead State University celebrates its culture of academic excellence and its 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 and Technology**

# Celebration of Student Scholarship

Adron Doran University Center  
Morehead State University

April 24, 2013

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## Concurrent Session – 301 ADUC

Moderators: Dr. Joy Gritton & Dr. Philip Krummrich

**9:00 – 9:15 a.m.      The Haldeman, Kentucky after school program**

**CS - 1**

***\*Megan Harper, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

The Haldeman Community Center after school program began in the Fall of 2012. The overall goal of this program is to offer a safe, encouraging, child-centered environment where students can participate in enrichment and physical activities, receive help with their homework, and enjoy a healthy snack. This presentation will provide an introduction to the challenges the children and volunteer staff have faced, what is being done to overcome these challenges, and the lessons learned. Benefits of this program will also be discussed. This project is supported by an MSU Undergraduate Research Fellowship through the Morehead State University Honors Program.

**9:15 – 9:30 a.m.      Community Art 101: Teachers involving their students in community art projects**

**CS - 2**

***\*Julie Haymond, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

Communities in Eastern Kentucky often benefit from the art teachers in their schools. They play a key role in bringing communities together with community-wide art projects and festivals. This project documents the stories of art teachers in the region that involve their students in community. The Eastern Kentucky Arts Project team has interviewed art instructors throughout Eastern Kentucky about their lives, art, and work in community. Featured art instructors include Jason Ratcliff of Rowan County, Janell Potter of Morgan County, and Emily Baldrige of Johnson County. This project was supported by an MSU Undergraduate Research Fellowship.

**9:30 – 9:45 a.m.      The significance of architectural landmarks in eastern Kentucky**

**CS - 3**

***\*Tara H. Madden, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

This project looks at major architectural landmarks in the Eastern Kentucky counties of Laurel, Whitley, and Knox, tracing the significance of these structures to their communities over time. Information gathered on these noted landmarks includes the methods by which they were constructed, the architects who designed and built them, and the different functions they have served. Comparisons are made between the structures' current appearance and their original forms, using historic and recent photos. Oral history interviews are used to document the personal meanings these landmarks hold for natives of these counties. Through these combined research methods a clearer idea of the significance of architecture in Eastern Kentucky--past and present--is revealed. This project is supported by an MSU Undergraduate Research Fellowship.

\*Student presenter

**9:45 – 10:00 a.m.      The art of exhibitions and collections management**

**CS = 4**

**\*Annie Peterson, Dr. 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 and services. Working within the arts programming hosted by the Claypool-Young Art Gallery, UR Fellow Annie Peterson was involved with the coordination and management of art events during the 2012-13 academic year, including the organization of art submissions for the 2013-15 group & thematic exhibition jurying process, and assisting in art handling, receiving, and installation with seven exhibitions. Her work included marketing, hosting evening and weekend events, and event organization. She was also involved with reorganizing/rehousing the University Art Collection in preparation for inventory. 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 and Design, and the Caudill College of Arts, Humanities, and Social Sciences.

**10:00 – 10:15 a.m.      On the path from planning to programming: Art events and exhibitions**

**CS = 5**

**\*Carly Saunders, Dr. Jennifer Reis, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

The Undergraduate Fellowship in Art Events Management focuses on the conception, logistical planning, marketing, and management of arts programming. Working within the arts programming hosted by the Claypool-Young Art Gallery in the Department of Art & Design, UR Fellow Carly Saunders was involved with the planning and management of events during the 2012-13 academic year, including the Annual Craft Bizarre, seven exhibitions, and visiting artist programming. Her work on these projects included PR/marketing, hosting special evening and weekend events, exhibition installation, and event planning and troubleshooting. Through the programming at MSU as well as the Craft Bizarre, Ms. Saunders has become familiar with both for-profit and non-profit art sectors. This fellowship is designed to prepare a student to begin a career in arts administration or to pursue a degree in arts administration, 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.

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      The Haldeman Community Center: Rebuilding the community**

**CS = 6**

**\*Megan Sloas, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

Beginning at the turn of the 20th century, the clay mines and brick plant of the Kentucky Fire Brick Company created a booming economy for the Haldeman, Kentucky area. By the 1930s Haldeman was a thriving community with an ice cream parlor, daily train service, and a new school. The post-WWII decline caused the brickyard to close, and the town slowly dissolved. The seniors of this area want to reconnect with their history and recreate the robust family atmosphere they remember as children. This presentation discusses the community center they founded and the new after school program they now operate from their perspective, using oral history interviews conducted with community members and on-site observations. Support for this project comes from a Center for Regional Engagement Fellowship.

**10:45 – 11:00 a.m.      Overcoming stereotypes: Young artists in Harlan County**

**CS = 7**

***\*Kara Staggs, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences***

This presentation provides findings from a series of short interviews with both young and mature artists from Harlan County, Kentucky. Topics addressed include how each artist feels about their work in relation to the region, the stereotyping of Appalachian art, and any discouragement that young artists might feel while attempting to break the mold of a cultural mindset and/or artistic style. These inter-generational oral histories reveal how perspectives have changed over time. Research also included examining Harlan County's unique arts programming, including the Higher Ground Theatre and Performing Arts group and Captain Crowdad's Social Experiment, an arts festival that showcases local music, literature, and visual arts from all styles and genres. This project was supported by an MSU Undergraduate Research Fellowship.

**11:00 – 11:15 a.m.      Creating a TV series for KET: Pre-production, production, and post-production**

**CS = 8**

***\*Pamela Shay Hammond, Jeffrey Hill, Mentor, Department of Communication, Media, and Leadership Studies, Caudill College of Arts, Humanities, and Social Science***

When you watch a TV show, you imagine that people just had to set up cameras and shoot it. In actuality, the majority of the work of creating TV is done before and after the shooting. This behind the scenes look explains what it took to create "How Hollywood Does It," 12 half-hour shows on film history and techniques currently airing on KET. This studio production needed film clips to be captured from dozens of films; lighting and sets to be designed; scripts and film clips to be closed-captioned; scripts to be written; shooting to be rehearsed; multiple shots to be edited; and graphics to be designed. This research was supported by an MSU Undergraduate Research Fellowship and a grant from the Kentucky Humanities Council.

**11:15 – 11:30 a.m.      A study of W. A. Mozart's "Trio for Clarinet, Viola, and Piano," K. 488 from a clarinetist's perspective**

**CS = 9**

***\*Maria Felice, Dr. Lori Baruth, Mentor, Department of Music, Theatre, and Dance, Caudill College of the Arts, Humanities, and Social Sciences***

Although the "Trio for Clarinet, Viola, and Piano," K. 488 by W. A. Mozart has been studied from many angles, I chose to examine this work from the perspective of a clarinetist, paying close attention to the role of each instrument in the melodic and harmonic structure. I have studied and performed the clarinet part and examined the score to observe how each instrument voice works in conjunction with the other voices to create the overall melodies and harmonic structure throughout the piece. Through this fellowship, I have gained knowledge of Mozart's writing that will help me as both a performer and a music educator. This project was supported by an MSU Undergraduate Fellowship.

**11:30 – 11:45 p.m.      Much more than a dream**

**CS = 10**

***\*Emry Davidson, Joshua Grandison, Veronica Johnson, Katherine Reams, Brice Yates, Mentor, DREAMS Mentoring Program***

During the fall semester, some students in the DREAMS mentoring program visited Washington, DC. The goal was to gain a deeper understanding of the contributions African Americans have made to U.S. society. One highlight of this trip was visiting the Martin Luther King, Jr. National Monument. The King Memorial is the first on the National Mall to honor a single African American and the first not in honor of a president. Therefore, this presentation focuses on the socio-historical and political of the U.S. from Jim Crow to the election of the first African American president, including establishing to an African American on the National Mall. Has the dream come true or is there much work still to be done?

**11:45 – 12:00 p.m.      *Break***

**12:00 – 12:15 p.m.      **Before “the pursuit of happiness:” Locke, Johnson, and Rousseau****

**CS = 11**

***\*Ben Caldwell, Dr. Glen Colburn, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

Thomas Jefferson’s famous words in the Declaration of Independence have become a cliché in America. The pursuit of happiness – the “American dream” – seems to Americans to be basic human nature, but it is actually a relatively recent take on life, and its origins as a modern political and philosophical principle can be traced to John Locke (1632-1704) and Jean-Jacques Rousseau (1712-1778). Moreover, a brief overview of eighteenth-century thought shows that the history of the belief in the pursuit of happiness is not a straightforward, linear line of development from medieval skepticism about earthly happiness to the modern ideal of happiness in the eighteenth century. Writing at the same time as Rousseau and a half-century after Locke was Samuel Johnson (1709-1784), whose influential works show a deeply pessimistic view of human happiness that seems more medieval than modern.

**12:15 – 12:30 p.m.      **Edgar Allan Poe's *Pym* and representations of the “natural”****

**CS = 12**

***\*Spencer Sullivan, Dr. Layne Neeper, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

Edgar Allan Poe's only novel, *The Narrative of Arthur Gordon Pym of Nantucket*, concerns itself greatly with “nature” and “the natural”, and what is and is not natural in the world. More importantly, this novel addresses Poe's views on the natural state of human psychology and sociology. What he describes is somewhat disturbing. Psychologically, he seems to acknowledge that humans are governed “naturally” by a self-destructive and thantoptic spirit of perversity. Sociologically, racial difference between whites and blacks “naturally” results in bloody antagonism, and the only “natural” response of well-meaning whites to the black Other is suspicion, control, and violent confrontation. This project will focus on Poe's views on the “natural” being represented from a psychological and sociological standpoint.

**12:30 – 12:45 p.m.      **The art of the book review in the digital era****

**CS = 13**

***\*Ben Whisman, Dr. Thomas Williams, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences***

With the overwhelming amount of books published in the United States each year, it’s easy for lesser known but equally as talented writers to be neglected in the dwindling number of publications that still review books. The *American Book Review* focuses on books released by small, regional, university, ethnic, avant-garde, and women's presses—ones that could be easily neglected. My involvement with *ABR*, led by associate editor Dr. Tom Williams, included reading galley copies of upcoming or recently released small press books. After reading these books I would collaborate with Dr. Williams on locating suitable authors and assigning them appropriate books for review. When the reviews came in I would edit them, working in tandem with Dr. Williams and on my own to solve problems with style, formatting and focus. My time with *ABR* immersed me in a community of people passionate about writing and reading. My work with Dr. Williams and *ABR* was a notable and hands-on introduction to the different aspects of the world of book reviewing, editing, and publishing. This experience has energized and encouraged my journey as a writer.



**12:45 – 1:00 p.m.      A gendered legacy: The influence of the Burning Times on the Salem Witch Trials**

**CS - 14**

***\*Rebecca Parker, Dr. Kris DuRocher, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

In reference to the cause of the Salem Witch Trials, where New England settlers imposed traditional English constructs in the fluid environment, few historians acknowledge the parallel conditions of the Burning Times, which occurred during the early modern period in Europe, in response to political instability, social transformation, religious reform, and economic development. An estimated fifty thousand to one hundred thousand people were executed and the victims were primarily older and widowed, female, or socially estranged. The Salem Witch Trials were a continuation of the social control mechanisms employed during the Burning Times, because they centered on eliminating the autonomy of women and the poor through the codification of witchcraft, defining femininity to discourage challenges to the positions of power reserved for elite men. A MSU Undergraduate Research Fellowship supported this research.

**1:00 – 1:15 p.m.      Soviet women: The socialization of Russian women after the Bolshevik Revolution**

**CS - 15**

***\*Marshall Stevens, Dr. Alana C. Scott, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

Late in 1917 Russia experienced the rise of the Bolshevik party. However, while there has been discussion about the Russian Revolution in general, there has not been a strong evaluation of the socialization of women that took place. To assess this socialization, it is important to analyze the institutions that did so. These institutions were the patriarchal Soviet culture, education, and factory work. Not only should the institutions be analyzed, but the significance of gender within the working class, as well as, the relationships of women amongst their co-workers and places of employment, must be evaluated.

# Concurrent Session – 302 ADUC

Moderators: Dr. M. Scott McBride, Dr. Ahmad Zargari & Dr. Lesia Lennex

9:00 – 9:15 a.m.      **Politics in “The Nightingale”**

CS - 16

**\*Kayla Burton, Dr. Philip Krummrich, Mentor Department of International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Sciences**

Samuel Taylor Coleridge’s “Nightingale, A Conversation Poem” attempts to separate traditional literary associations of the nightingale as a melancholy creature from the reality of the bird’s joyous attributes. In doing so Coleridge warns against the follies of a “night-wandering man” and also “youths and maidens” who allow society to dictate their opinions instead of creating their own thoughts through experience. Coleridge relies on the life led by a “gentle maid,” who disassociates herself from society and authority, and is able to learn from the nightingale and its song. Simultaneously Coleridge uses Ovid’s myth of Philomela to highlight the distortions of literary tradition and also make his negative opinions of England’s imperialistic actions clear, thus thrusting the themes of the “Nightingale” into a realm that reflects tradition and current events.

9:15 – 9:30 a.m.      **Mirror or catalyst? An investigation of Spanish cinema and the evolution of womanhood in Spain**

CS - 17

**\*James Kyle Hager, Dr. Philip Krummrich, Mentor, Department of International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Science**

Spain has undergone significant social changes in the decades following the end of Franco’s near-forty year dictatorship. In particular, the idea of womanhood has changed dramatically in comparison to the conservative role promoted by the Nationalist regime. Modern Spanish cinema appears to reflect the social change in the acceptable positions women can hold in society and the relationships they can have (or refuse to have) without suffering negative social repercussions. What is less obvious is to what extent the Spanish film industry has served as a catalyst, rather than a mirror, for social change. This presentation will analyze the impact of Spanish film on its society from a theoretical and empirical perspective, comparing the narratives presented in recent films with those from previous eras of Spanish cinema.

9:30 – 9:45 a.m.      **Globalization and human rights in China**

CS - 18

**\*Lanora N. Johnson, Dr. James R. Masterson, Mentor, Department of International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Sciences**

Led by reforms in the Post-Mao Era, China’s opening to FDI and international trade has led to remarkable economic growth. Along with increased economic prowess, China has taken a larger role in international law and has been involved in the international dialogue on human rights since the 1980’s, joining four Geneva humanitarian conventions and several human rights treaties by the United Nations General Assembly, as well as recognizing several human rights in their 1982 Constitution. Our research focuses on changes in China’s human rights practices in comparison with changes in levels of foreign direct investment and foreign trade in China. Despite China’s increased global economic integration, empowerment rights enjoyed by Chinese citizens have declined while respect for physical integrity rights has fluctuated. This research was supported by MSU Undergraduate Research Fellowship.

**9:45 – 10:00 a.m.      Romanian seasonal agricultural labor in custom grain and forage harvesting in the Great Plains**

**CS - 19**

***\*Oana Nae, Dr. Jason Holcomb, Mentor, Department of International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Sciences***

This research is an effort to expand a larger project involving foreign labor used in custom grain and forage harvesting in the United States. Due to a shortage of domestic labor, custom harvesters in Great Plains states have been using foreign labor through the federal government's H-2A and J-1 visa programs. Romania is one of many European source countries, but little is known about these foreign workers. In 2011 Romania supplied 167 H-2A seasonal agricultural workers to U.S. employers, but the number that worked for custom harvesters is unknown. Results are presented of efforts in the spring of 2013 to contact current and former Romanian workers and get them to complete an online survey. Romania's Economic conditions and other current migration patterns are also presented.

**10:00 – 10:15 a.m.      Much more than a residence hall: The Morehead State University Honors House**

**CS - 20**

***\*Amy Payne, Taylor Gasser, Samantha Haas, Oana Nae, Brooke Washburn, Natasha Whitt, Dr. Philip Krummrich, Mentor, Department of International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Sciences***

The contributors of this project combined their expertise to write a monograph on the Morehead State University Honors House that will appear in an upcoming publication discussing Honors housing. The purpose, history, floor plans, and usage of the house were focused upon in the article with accompanying photos and drawings. I would like to express my appreciation for my Undergraduate Research Fellowship, funded by the Honors Scholarship.

**10:15 – 10:30 a.m.      *Break***

**10:30 – 10:45 a.m.      Re-design of an affordable solar light for improved brightness and versatility**

**CS - 21**

***\*Joshua K. Corum, Drs. Hans Chapman and Yuqiu You, Mentors, Department of Applied Engineering and Technology, College of Science & Technology***

The current market for solar-powered lighting appliances has not reached its full potential. The underlying factors include, but not limited to, decreased brightness as opposed to their traditional grid-powered counterparts. Coupled with that limitation is the state of development of the back-up batteries used for these solar light bulbs. To investigate the efficiency and performance of solar lights, a study was performed on typical solar lights found at big box stores. The goal was to improve the design of the solar light for improved brightness output and durability, while at the same time affordable. Over the course of this project, alternative concepts were developed and a new improved design was achieved which was brighter, more user friendly, but can be priced at the same dollar value as the selected light. The new design also adds versatility to the light so that it can be used for both in-door and out-door lighting. It is envisaged that the new improved design will be of benefit for disaster relief, power outages, and in remote areas, where grid electricity is not readily available.

**10:45 – 11:00 a.m. Improved testing capabilities for solar energy in Eastern Kentucky**

CS - 22

**\*Andrew Greene, Dr. Hans Chapman, Mentor, Department of Applied Engineering and Technology, College of Science and Technology**

As awareness and demand for solar energy technologies increase, the need for more accessible and reliable region-specific solar resources becomes more pressing. There are a number of solar radiation resources for the United States. However, there is only a limited amount of these resources are specific to the Eastern Kentucky region. This research is aimed at improving the existing solar resource testing capabilities for the region, using Morehead State University as a test site. The methods being employed involve outdoor measurements of solar irradiance, using a hand-held solar irradiance meter. Acquired data has been analyzed with RETScreen Energy Model software. The results obtained have been compared with data from the Kentucky Mesonet Station at the Derrickson Agricultural Complex in Morehead. These results show a correlation with atmospheric factors such as ambient temperature and wind speed. The development of more location-specific solar resources has the potential to increase the level of interest and investments in renewable energy technologies in the region. This research presents a valuable intellectual merit. The study and its outcomes can serve as a foundation for further research in renewable energy at MSU and in the region.

**11:00 – 11:15 a.m. Open-circuit voltage decay of CdTe solar cells**

CS - 23

**\*Trenton Peterman, Dr. Kent Price, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

The need for reliable, efficient, and inexpensive energy is apparent. One solution is the use of thin-film CdTe solar cells, which are more cost-effective than traditional cells. However, understanding of these devices can still be improved. One method of characterizing the electrical properties of solar cells is Open-Circuit Voltage Decay. We studied the Open-Circuit Voltage Decay in CdTe cells as a function of time, which is modeled by an exponential decay function. We measured the voltage decay for cells of various thickness. Reducing the thickness of a cell reduces its cost but also affects performance in ways that are not fully understood. We also observed the relationship between the voltage decay the performance of the cell. This research was supported by MSU Undergraduate Research Fellowship.

**11:15 – 11:30 a.m. Application of computational fluid dynamics to fault analysis in HVAC system design of heavy equipment**

CS - 24

**\*Charles M. "Matt" Watson, CTM, Dr. Nilesh Joshi, Mentor, Department of Applied Engineering and Technology, College of Science and Technology**

The focus of this presentation is on demonstrating the use of computational fluid dynamics (CFD) to solve real-world engineering design problems and how this approach can perform design fault analysis quickly in a virtual environment. The use of virtual environment can help save countless hours by minimizing physical prototyping. Our case study shows that we were able to identify the problem with the HVAC system design of a heavy equipment with CFD simulation on 3D CAD models, and ultimately we were able to re-design the system to obtain the best possible airflow. The integrated CAD/CFD analysis approach required minimal field testing of current equipment, thus minimizing the overall cost of the redesign.

**11:30 – 12:00 p.m. Break**

**12:00 – 12:15 p.m.      Fighting the ‘F’ word: Organizing and recruiting for a feminist group**

CS = 25

***\*Danielle Story, Drs. Bernadette Barton and Connie Hardesty, Mentors, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

Continuing efforts to develop feminist consciousness raising groups on college campuses today remain as imperative as during the Second Wave of the Women’s Movement. The combination of backlash against women’s improved status and opportunities, raunch culture, an increasingly androsexist media, and an absence of gender equality curriculum in education means that most students are, at best, uninformed about feminism, and at worst, perceive feminism negatively. Drawing on ethnographic observations and interviews with other student leaders, this study explores the challenges of organizing and recruiting for the feminist group SAGE (Student Association for Gender Equality) at Morehead State University. In particular, this study explores how female and male leaders experience leading a feminist student group, challenges with organizing and recruitment, and overall dilemmas faced by social feminist activist groups. This research was supported by MSU Undergraduate Research Fellowship.

**12:15 – 12:30 p.m.      The effects of bereavement on incarcerated men’s harmful behavior**

CS = 26

***\*Hannah M. Willis, Dr. Rebecca S. Katz, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

In interviews with twenty incarcerated men, findings reveal that many men’s family of origin histories or families of procreation share a common theme of pathological bereavement. Many of these men’s backgrounds reflect multiple types of victimization, typically at the hands of their parents, including emotional abuse, physical abuse, sexual abuse, emotional abandonment, or enmeshment with a parent. Another group of men experienced the loss of their primary love object, their wives. We argue that none of these men were prepared to cope with these devastating losses, damaging their already fragile identities and minimal coping skills. Masculine socialization practices in general, prohibit inculcating men with effective means to cope with bereavement or trauma often leading them to act out their pain in harmful ways. This research was supported by MSU Undergraduate Research Fellowship.

**12:30 – 12:45 p.m.      Successes and challenges of conducting a transition fair in a rural region**

CS = 27

***\*Amy Clausen, Dr. Sarah Hawkins, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

Over the past four years, students from EDSP 372, Transition to Adult Life and the Student Council for Exceptional Children have partnered to host a Transition Fair for individuals with disabilities from surrounding counties. The Transition Fairs have included breakout sessions for students and also a chance for students to meet representatives from colleges, state agencies, and organizations. The purpose of this study is to synthesize survey data from participating teachers and agencies across the four years. Another component of this research is to take comments from the teachers and agencies along with research regarding transition to adult life to make suggestions and changes for future Transition Fairs. This research was made possible by the Kentucky Council for Exceptional Children and the Undergraduate Research Fellowship.

12:45 – 1:00 p.m.      **Framing technology leadership in a Jackson Independent**

CS ▪ 28

**\*Allison Johnston, Rebecca Roach, Mentor, 21<sup>st</sup> Century Education Enterprise, College of Education**

The purpose of this qualitative study was to delve into the organizational changes and leadership involved in the Jackson Independent School staff's adoption of technology. Last year the quantitative focus categorized the district's cultural change according to a classical theory by Trice and Janice. This year, the qualitative, typological study is based on the leadership theories of Bolman and Deal. This study was designed to analyze the leadership and administrative strategies that brought about the cultural change measured in year one of the study.

# Concurrent Session - 312 ADUC

Moderators: Dr. Bruce Mattingly & Dr. Roger McNeil

**9:00 – 9:15 a.m. Morphine effects on simple and complex learning in rats: Adolescence to adulthood**

CS - 29

**\*Gianni P. Maione, Natalia Santiago, Drs. Wesley White and Ilun M. White, Mentors, Department of Psychology, College of Science and Technology**

Repeated morphine disrupts behavior via mu receptors. We examined the effects of morphine on simple and complex learning. Wistar rats received either morphine (10mg/kg) or saline, postnatal days (PD) 50-54, and were tested on a simple fixed ratio (FR5), which required five lever-presses for a food-reward on post-injection days 3-7. Rats were tested again on a complex Go/No-Go task after PD90. Compared to controls, morphine group made fewer lever-presses with slower response latencies in FR5. A similar pattern was seen in morphine group during a Go/No-Go task, with slower responses and more errors during Go trials. This suggests that morphine-induced deficits in simple learning in adolescence may predict enduring deficits in complex learning in adulthood, and reflect dysfunctional prefrontal cortex. Supported by NIH grant, R15DA015351.

**9:15 – 9:30 a.m. Tracking the elusive phasin protein in *Cupriavidus necator***

CS - 30

**\*Adam Davis, Dr. Douglas Dennis, Mentor, Department of Biology and Chemistry, College of Science and Technology**

PhaP is the major phasin protein found in *Cupriavidus necator*, a common soil microorganism. The protein is found on the surface of poly-hydroxyalkanoate inclusions and is thought to regulate their growth and size. At this time is unclear how the protein moves to the surface of the inclusion. One theory is that the protein moves to the boundary of the cell, where nascent inclusions are formed. Another theory suggests that the inclusions are formed in the center of the cell and, therefore, PhaP must migrate to this location. In order to determine which theory is correct a gene chimera of PhaP and the fluorophore gene mCherry is being made so that it may be placed in a phaP-negative mutant of *C. necator*. It is hoped that UV-microscopy will reveal the location of PhaP within the cell. The construction of the chimera and the initial experiments are described in this presentation.

This research was supported by a grant from the Kentucky Biomedical Research Infrastructure Network and a grant from the National Science Foundation (#1052127).

**9:30 – 9:45 a.m. Lichen species inventory for Carter Caves State Resort Park, Carter County, KY**

CS - 31

**\*Victoria Evans, Channing Richardson, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Lichens are a complex symbiosis made of two components: a fungus and an organism capable of producing food, either algae or cyanobacteria. Lichens are a vital part of forest ecosystems; those containing cyanobacteria are able to convert nitrogen in the atmosphere into usable nitrogen compounds for plants in the surrounding area. They are one of the first pioneers in a new environment, able to colonize rocks, soil, bark, and wood. The primary objective of this study was to conduct a lichen species inventory for Carter Caves State Resort Park. A total of 166 specimens have been collected from the park with 63 individual species identified (46 foliose lichens, 4 fruticose, and 13 crustose). This research was supported by an MSU Honors Program Undergraduate Research Fellowship.

**9:45 – 10:00 a.m.      Vascular plant inventory of the Rowan County Sphagnum Swamp, Farmers, Kentucky**

**CS = 32**

**\*Kelly L. Modaff, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The Rowan County Sphagnum Swamp (RCSS), an uncommon bottomland swamp forest, is situated 1.5 miles north of Green Mountain in western Rowan County. The site has standing water from November to June and is underlain by Middle Silurian Estill Shale topped by Quaternary alluvium. RCSS is within the Licking River floodplain and is comprised of 22 mostly forested acres and a pipeline right-of-way. Topographically, the area exhibits a gradual down-hill slope from east to west. The purpose of this study (funded by the Kentucky Society of Natural History) is to generate a specimen-based vouchered list of the plants currently present in this rare plant community and will also include specimens collected by previous researchers. Thus far 58 species have been documented.

**10:00 – 10:15 a.m.      Beta diversity comparisons of woody plant species richness in two eastern Kentucky state parks**

**CS = 33**

**\*Lacey Pyles, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Beta diversity has been defined as the variation in species composition among sites in a geographic area. Beta diversity is an important concept for ecosystem management, conservation of biodiversity and for understanding the function of ecosystems. There are multiple ways to determine the beta diversity of an area using different functions of alpha and gamma diversity. In order to better understand the differences in species richness and varying sizes of Carter Caves and Greenbo Lake State Resort Park, eight different mathematical approaches for calculating beta diversity were applied to five 1000m<sup>2</sup> plots in both parks. The plots compared from each park had the same slope orientations and the same elevation. This research was supported by the MSU Undergraduate Research Fellowship Program.

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      Relationship between climatic variables and *Quercus alba* growth rates, Eagle Lake, Morehead, KY**

**CS = 34**

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

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 *Quercus alba* (white oak). In this study, 32 samples were taken from 16 *Q. alba* from a 1000 m<sup>2</sup> plot near Evans Branch upstream of Eagle Lake. The results showed that Palmer Drought Severity Index had the strongest relationship among the climatic variables to the standardized annual ring widths of *Q. alba* during the summer months. This research was supported by the MSU Honors Program Undergraduate Research Fellowship.



**10:45 – 11:00 a.m.      Dispersal ability of the Frecklebelly Darter (*Percina stictogaster*)**

CS = 35

**\*Brooke Washburn, Carol-Rose Gingras, Dr. David J. Eisenhour, Mentor,  
Department of Biology and Chemistry, College of Science and  
Technology**

The Frecklebelly Darter, *Percina stictogaster*, is a small fish of conservation interest, but its natural history is poorly known. We compared the movement of this species, which is highly pelagic, to those of five other benthic or semi-pelagic darters. In four reaches of the Red River, Kentucky we tagged 488 individuals of six darter species using subcutaneous injections of visible implant fluorescent elastomer (VIE) in May-October 2012. These four reaches plus an additional four reaches were surveyed by snorkeling in August 2012 and by seining in October 2012. We subsequently observed or recaptured 21 individuals, only 2 of which were outside their original reach. Preliminary findings indicate that all darters studied move little during the summer and early fall, but pelagic and semi-pelagic species dispersed farther. Partial funding was provided by Department of Biology and Chemistry Faculty Research Endowment.

**11:00 – 11:15 a.m.      A model to reduce light pollution and increase efficiency of outdoor lighting on Morehead State University's campus**

CS = 36

**\*Bryan Conn, Drs. Jennifer Birriel and Ignacio Birriel, Mentors,  
Department of Mathematics, Computer Science, and Physics, College of  
Science and Technology**

Light pollution is a problem not only for astronomers but for city budgets and climatologists. Astronomers see light pollution as a way of preventing them from viewing the cosmos above, while the city budget committee should see light pollution as a cutting into their bottom line. By lighting the sky with inefficient light fixtures we are burning unnecessary fuel, spending unnecessary funds, and blocking the stars from our sight. As a way of modeling this problem and finding an inexpensive solution, a scale model of a small area around the Bell Tower on Morehead State University's campus was built by a previous student. However, the student did not have sufficient time to design an electrical circuit that met the current and voltage restraints of each lamp. We present here our design and analysis of the circuit. We compare our theoretical calculations to the measured currents and voltages. We conclude by briefly discussing how this model is to be used in conjunction with a light meter to find the best configuration of light fixtures to reduce power consumption and light pollution while simultaneously providing the safest lighting environment in the area.

**11:15 – 11:30 a.m.      The faunal age and abundance of the Jacobs Chapel Shale in the Morehead, Kentucky area**

CS = 37

**\*Ashley Boyd, Toney Nelson Phillips, Dr. Charles Mason, Mentor,  
Department of Earth and Space Science, College of Science and  
Technology**

The Jacobs Chapel Shale has only recently been recognized, in the Appalachian Basin. It consists of a 10 to 12 cm interval of greenish clay shale at the very base of the Borden Formation. It's type section occurs in the Illinois Basin (southern Indiana). In it's type area it contains conodonts from the lower *crenulata* biozone indicating a Lower Mississippian (Kinderhookian) age.

To date 150 kilograms of sample have been processed for macrofossils and 30 kilograms for microfossils. The samples were broken down using the kerosene technique and washed through a nested set of U.S. standard sieves, a #20 for macrofossils and a #100 for microfossils. The residue caught on the #20 and #100 sieves was examined for fossils. All picking, sorting, and identification of fossils were conducted under a binocular microscope.

The results, of this study, to date have confirmed that this unit in the Morehead area contains conodonts belonging to the lower *crenulata* biozone. Also, evidence such as quartz grains, bone fragments, phosphate nodules, as well as fish and shark teeth supports that this interval contains one or more lag deposits. Additionally, mollusks dominate the macrofauna and conodonts dominate the microfauna.

An MSU Undergraduate Research Fellowship awarded to Ashley Boyd supported this study.

**11:30 – 11:45 a.m.      Human trafficking by the numbers**

**CS ▪ 38**

***\*Joel W. Nickell, Dr. Christopher Schroeder, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Human Trafficking, or modern day slavery, is the second fastest growing crime in the world. The International Labor Organization estimates there are 20.9 million victims of trafficking all over the world. These victims are often trafficked to different regions of the world. We will look at the trafficking patterns of these slaves and use transition matrices with the Perron-Frobenius Theorem to predict the long-term disbursement of these victims by region. We will then compare these results with the respective laws of the regions to determine if stricter laws in a particular region correlate with fewer human trafficking victims in that area.

**11:45– 12:00 p.m.      Break**

**12:00 – 12:15 p.m.      Content-based image retrieval using multi-histogram approach**

**CS ▪ 39**

***\*Jorge Chang, Heba Elgazzar, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

The purpose of this project is to develop and optimize a content-based image retrieval system that can be used to compare an input image against a database of images to retrieve similar images. The similarity will be based on the actual contents of these images. A number of popular image processing techniques that can be used to extract important features from images were considered to increase the matching performance. We propose a multi-histogram approach that includes standard, global and semi-global edge histogram, and color histogram. In this presentation, we take a look at how these different techniques work along with their strengths and weaknesses in order to find a good balance for a functional content-based image retrieval system.

**12:15 – 12:30 p.m.      Design and implementation of parallel data mining algorithms**

**CS ▪ 40**

***\*Erich Hohenstein, Dr. Sherif Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Data mining extracts implicit, previously unknown, and potentially useful information from datasets. The goal of this research project is to design and implement parallel algorithms that can be used for a wide range of data mining applications to mine large databases. In this research, we focus on the parallel implementation of the Apriori algorithm in order to improve its performance. We use OpenMP to support shared-memory parallel programming in C++. We utilize the set of compiler directives, library routines, and environment variables that are provided by OpenMP. This research was supported by MSU Undergraduate Research Fellowship.

**12:30 – 12:45 p.m.      Mobile data analysis using frequent sequential pattern mining**

**CS - 41**

***\*Zachary W. Lamb, Dr. Sherif S. Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Recent advances in mobile computing have suggested that the task of frequent sequential pattern mining can be accomplished in the mobile environment. Current algorithms are intended for implementation on machines with sufficient memory space and processing capabilities. To better utilize mobile data in mobile devices, a shift from stationary workstations to the mobile environment is proposed. The goal of this research is to discover frequent patterns of mobile users that can be used for different applications such as optimization of location-based services or improving targeted advertising. Implementation would require an algorithm that has been optimized to conserve memory and efficiently operate with limited processing resources. Techniques such as pseudo-projection of the database and elimination of the candidate-generation process are tested and optimized for the mobile environment. This research was supported by MSU Undergraduate Research Fellowship.

**12:45 – 1:00 p.m.      The mathematics of astronomical spectral reduction and analysis**

**CS - 42**

***\*Jason McGinnis, Dr. Jennifer Birriel, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Astronomical spectral reduction and analysis involves as much mathematics as it does physics. Analyzing the data requires liberal use of numerical methods to interpolate the data. The most used methods are spline interpolation and Chebyshev polynomials. These methods use the discrete data points collected and interpolate them to create a continuous spectrum. With this spectrum we can learn things about the object we are interested in. Using Statistical analysis on the spectrum we get from the interpolation can yield us several valuable insights. Fitting spectral lines to normal curves the flux and center wavelength can be determined. With this information the species of atom or molecule can be determined. Finally using the Doppler shift we can find out the velocity of the atoms as they emit the photons that create the spectral lines.

**1:00 – 1:15 p.m.      Applications of the unihedron sky quality meter**

**CS - 43**

***\*Zane McQueary, Dr. Jennifer Birriel, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

This Undergraduate Research Fellowship focuses on the light pollution present on the campus of Morehead State University. The contribution due to natural sky brightness and light pollution and will be examined when analyzing the SQM-LE data results. Furthermore, a comparison between the Morehead campus and other SQM-LE locations will be utilized.

# Concurrent Session – Commonwealth Room

Moderators: Dr. Robert Albert

**9:00 - 9:15 a.m. Early life experiences fostering ethical leadership development**

CS - 44

**\*Caitlin Bailey, Dr. Johnathan K. Nelson, Mentor, School of Business Administration, College of Business and Public Affairs**

Ethical leadership is a critical determinant of organizational success. Thus, it is important to understand how ethical leadership is developed. Ethical leaders possess personal integrity and actively promote ethical behavior. While research has identified many influences on leader development, less attention has been devoted to the influence of early life experiences on leadership development, particularly in regards to ethical leadership. To address this gap in the literature, this presentation will describe a qualitative study using a historiometric method to identify early life experiences that trigger ethical leadership. By more thoroughly examining the events that spark individuals to become ethical leaders, we will be able to more effectively meet the ethical leader development needs in organizations. This research was supported by Booth Endowment funding.

**9:15 - 9:30 a.m. Impacts of economic reform on the expansions of middle classes in Southeast Asian countries**

CS - 45

**\*Yen Tran, Dr. Ali Ahmadi, Mentor, School of Business Administration, College of Business and Public Affairs**

This study investigates whether or not the economic reforms and progress have had a positive effect on the size of the middle-class of eleven Southeast Asian countries. The study presumes the middle class has an important role in bringing about political and economic stability of a country. Economic data from World Bank, government websites of these countries, and other sources were analyzed and various measures of economic development were tested to achieve the results of this study. Results of the study indicate, despite reduction of the poverty and heterogeneity of the patterns for these countries, in general, these reforms have not led to the expansion of the middle class relative to the other socioeconomic classes. This research was supported by School of Business Administration and the Honors Program.

**9:30 – 9:45 a.m. Roger Sherman and federalism: The transition from the articles to the constitution**

CS - 46

**\*Autumn B. Baker, Dr. Michael W. Hail, Mentor, School of Public Affairs, College of Business and Public Affairs**

This study examines the contributions by Roger Sherman on the American founding and federalism. The findings of this study attribute Sherman's political principles to his religiosity. The research utilized content analysis of archival documents, as well as an in depth review of literature on Federalism, Puritanism, Congregationalism, the Articles of Confederation, the 1787 Constitution, the Bill of Rights, and Roger Sherman. Findings suggest limited influence on current issues but significant, if underappreciated, influence from Roger Sherman and the associated structure of federalism. This research was supported by MSU Undergraduate Research Fellowship.

**9:45 – 10:00 a.m.      A community indicators project: Rowan County, Kentucky**

**CS = 47**

***\*Johnathon Dye, \*Taylor Lewis, \*Cody Murphy, \*Laura Pfalzer, \*Chad Wells, RAPP 300, Drs. Christine Emrich and Stephen Lange, Mentors, School of Public Affairs, College of Business and Public Affairs***

Our 2012 Community Indicators Project (CIP) continued a multi-year student project focused on better understanding what factors contribute to quality of life and economic progress in Morehead-Rowan County. The 2011 CIP process established a solid foundation for ongoing indicator work in our community. We continued this effort in 2012 by following the recommendations for future work presented at the end of the 2011 report. Specifically, we (1) updated and refined the community indicator dataset; (2) developed an initial survey framework that future classes can use to collect qualitative information on people's perceptions and values related to community quality of life; (3) produced an updated CIP Report for 2012. This project was partially supported by funding from the Appalachian Regional Commission's Appalachian Teaching Project.

**10:00 – 10:15 a.m.      Political polarization in America: How media bias and the culture war affects presidential elections**

**CS = 48**

***\*Johnathon M. Dye, Dr. Jonathan W. Pidluzny, Mentor, School of Public Affairs, College of Business and Public Affairs***

Media is everywhere in the United States. In its traditional forms—television, newspapers, and news magazines—and in newer forms—political blogs and talk radio—the American media has the potential to exert a major impact on the political views of American voters. This project compiles and analyzes research on media bias in the U.S in order to determine the extent to which media bias impacts American politics. In particular, this project, generously supported by an Undergraduate Research Fellowship, investigates the impact of media bias on Americans' voting patterns. Do stations like MSNBC and Fox News really polarize the voters who watch them? And more importantly, has a biased network ever tipped the vote in a national election?

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      The FDA, contraceptive marketing approval, and products liability litigation: Depo-Provera and the risk of osteoporosis**

**CS = 49**

***\*Bradley Fyffe, Dr. William C. Green, Mentor, School of Public Affairs, College of Business and Public Affairs***

The U.S. Food and Drug Administration has a legislative mandate to decide whether a prescription drug is safe and effective by assessing its scientific evidence and determining the acceptability of its risk. This research explores FDA's 1992 decision to approve Depo-Provera, a injectable contraceptive, the drug's 2004 FDA osteoporosis black box warning, and the drug's products liability litigation. This research has found that the FDA relied upon scientifically questionable research in approving Depo-Provera and that the drug's use has led to products liability actions by women who have claimed to suffer osteoporosis from drug's use. Their lawsuits have not succeeded, because the manufacturer has used the FDA's drug package insert, state products liability law, the learned intermediary doctrine, and expert evidence to avoid liability.

**10:45 – 11:00 a.m.      Breaking all the rules: How President Obama and congressional Democrats reformed healthcare against the odds**

**CS - 50**

***\*James T. Galbreath, Dr. Jonathan W. Pidluzny, Mentor, School of Public Affairs, College of Business and Public Affairs***

Aside from President Obama's Healthcare Reform Law, no piece of major social legislation has been enacted without bipartisan support over the course of the twentieth century. The Social Security Act (1935), the Civil Rights Act (1964), the Medicare Act (1965), and the Welfare Reform Act (1996) all garnered significant support from both political parties. In fact, the passage of Healthcare Reform defies almost every rule established by Douglas Arnold in his seminal work, *The Logic of Congressional Action*. In addition to its lack of bipartisan support, it delivers concentrated benefits to small and politically inattentive population, its significant costs diffused over a large, attentive, populations. This project, supported by an Undergraduate Research Fellowship, explains how President Obama and Congressional Democrats achieved their unlikely legislative success.

**11:00 – 11:15 a.m.      The shaping of the Appalachian mind**

**CS - 51**

***\*Katherine Rice, Dr. Gregory McBrayer, Mentor, School of Public Affairs, College of Business and Public Affairs***

The goal of the present study is to find patterns in the political ideologies and the rationale of those native to the Appalachian region. Around 10 interviews will be conducted and 40 surveys will be completed by Morehead State Students that are native to Appalachia whose ages range from 18 to 23. The patterns found in the subjects' responses will also be analyzed and compared to the ideologies and conclusions in philosophical texts such as Plato's *Republic* and Allan Bloom's *The Closing of the American Mind*. This MSU Undergraduate Research Project was sponsored by the George M. Luckey Honors Program.

**11:15 – 11:30 a.m.      Federalism and administrative law: Regulatory power and the constitution**

**CS - 52**

***\*Ashley Ruggiero, Dr. Michael Hail, Mentor, School of Public Affairs, College of Business and Public Affairs***

This research examines the Administrative Procedure Act (APA) and the impact on state authority and regulatory federalism. The initial results reflect a breadth of administrative law and regulatory policy at the state and federal levels. This research examines changes to sovereignty for the states as the nation transitioned to a regulatory state from a period of decentralized dual federalism. Moreover, the research studies Supreme Court cases, state and federal statutes, and the Constitution in order to further examine the position of Administrative Procedure Acts throughout the United States.

**11:30 – 11:45 a.m.      Faculty and student perspectives regarding academic honesty in online classes**

**CS - 67**

***\*Cody Hart, \*Matthew McCormick, \*Marisa Noe, \*Danny Patierno, \*Whitney Phillips, \*Heather Tussey, \*Joseph Whitaker, \*Samantha Woodall, Dr. Kenneth Henderson, Mentor, School of Business Administration, College of Business and Public Affairs***

A class project used qualitative and quantitative research measures to examine academic honesty in online classes from the perspective of students and faculty. Focus groups consisting of faculty and students from the four MSU colleges, members of the men's and women's varsity athletic teams, fraternities and sororities were conducted. A sample of 171 randomly selected students completed an anonymous online survey. The study found cheating was commonplace in all four MSU colleges. Faculty and students differed significantly in their definition of practices constituting academic dishonesty as well as the repercussions and consequences of cheating. Reasons why students cheat was explored and recommendations to reduce dishonest practices are presented. Research was also conducted to assess student and faculty perceptions of each other with regards to cheating. **(abstract received after submission deadline date)**

# Concurrent Session - Riggle Room

Moderators: Dr. Dora Ahmadi & Dr. Thomas Pannuti

**9:00 - 9:15 a.m. Preliminary work on the whipstitch game engine**

CS - 53

***\*D. Scott Nettleton, Dr. Sherif Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

The Whipstitch Game Engine is a work-in-progress 3D game engine, developed in C++. It utilizes OpenGL and a variety of other multiplatform open source libraries in order to create an accessible, modern, open source (MIT licensed) game development framework, both for commercial and non-commercial purposes. This talk provides a brief overview of the game engine, as well as a description of the current state of the project.

**9:15 - 9:30 a.m. Composition of solutions for the  $n+k$  queens separation problem**

CS - 54

***\*Biswas Sharma, Drs. Robin L. Blankenship, R. Duane Skaggs and R. Douglas Chatham, Mentors, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

The  $n+k$  Queens Problem requires the placing of  $n+k$  Queens and  $k$  Pawns on an  $n \times n$  chessboard in such a way that no two Queens attack each other. It has been proven that the problem has a solution when  $n > \max\{87+k, 25k\}$ . We attempt to obtain nice patterns and lower this bound on  $n$  by composing solutions and partial solutions for smaller values of  $n$  to obtain solutions for larger values of  $n$ . This research is supported by MSU Undergraduate Research Fellowship.

**9:30 – 9:45 a.m. Hextile to hex-stick knot mosaics of  $(p+1,p)$ -torus knots**

CS - 55

***\*Rebecca Volk, Dr. Robin L. Blankenship, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Abstract: A torus knot is any knot that can be embedded in an unknotted torus without crossing over or under itself. The stick number of a knot  $K$  is the number of straight sticks or line segments necessary to make  $K$  in a projection. The bridge number of a knot  $K$  is the number of maximum overpasses in a regular projection of  $K$ . This project investigates obtaining hex-stick numbers of knots embedded in hex-tile stick knot mosaics in terms of their bridge numbers.

**9:45 – 10 a.m. A game of numbers: Measuring the performance of a pitcher in baseball**

CS - 56

***\*Garrick Whittle, Dr. Chris Schroeder, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

With so many different statistics available on baseball pitchers, it is difficult to know which ones to use when evaluating a pitcher. In this presentation, given by a pitcher on the MSU baseball team, we will look at some of the most commonly used statistics to measure pitching effectiveness, their usefulness and flaws, and then present a new formula used to rate pitchers in college baseball. A ranking of the most effective pitchers in the OVC from last year's season will be given using this new formula.

**10:00 – 10:30 a.m. Break**

**10:30 – 10:45 a.m.      Design of an edge of space balloon release mechanism**

**CS = 57**

***\*Andrew Cavins, Robert Twiggs and Robert Kroll, Mentors, Department of Earth and Space Science, College of Science and Technology***

High altitude balloons can reach the edge of space at altitudes of 100,000 feet and higher and serve as platforms for scientific research. The balloon release mechanism is essentially a cutter that will serve a very important function for high-altitude balloons. Upon completion of the science mission, the balloon must be released from the payload to allow the payload to return to Earth. If released prematurely the balloon will not ascend high enough to perform the mission and can extend the flight path to excessive distances. In this talk the mechanics of the severing mechanism and its functions are described along with the electronics and micro-processors functions. The harsh environment of near space demands rigorous testing which drives design considerations and is discussed.

**10:45 – 11:00 a.m.      Electrical Power System (EPS) for CubeSat class satellite**

**CS = 58**

***\*Kien T. Dang, Brandon L. Molton, Kevin Z. Brown and Dr. Benjamin K. Malphrus, Mentors, Department of Earth and Space Science, College of Science and Technology***

Electricity powers every single satellite. The power source can be either solar photovoltaic (solar panel), solar thermal dynamic, radioisotope, fuel cell or nuclear, but eventually it must be converted to electricity to run other systems in a satellite. And that's the job of Electrical Power System (EPS). For a CubeSat class satellite, an EPS must be powerful enough to satisfy all power requirements, clever enough to protect the batteries and other systems in under-powered, over-powered, or confusion situations, fault tolerant enough in the radiation environment in space, and small enough to fit inside the nanosatellite. Our group in Space Science Center, Morehead State University, is developing an EPS, both hardware and software, with all those functions.

**11:00 – 11:15 a.m.      Numerical modeling and simulation of nanosatellite orbits**

**CS = 59**

***\*Jonathan Fitzpatrick, Dr. Benjamin Malphrus, Mentor, Department of Earth and Space Science, College of Science and Technology***

Mission planning and post launch tasks can be performed with the use of AGI's modeling and simulation package Systems Toolkit. On orbit parameters can be simulated to model mission constraints to assist in the mission design process. Once on orbit orbital mechanics can be defined and Keplerian elements can be derived from flight dynamical data. These elements can be used to assist in locating the satellite when launched in clusters and can also be used to determine satellite pass times assist in tracking scheduling. Utilizing the astrogator propagation engine, propulsion of cubesats can be simulated for cubesat missions that rely on self propulsion systems. Examples of the uses of this software on Morehead State nanosatellite missions, both on-going and proposed, will be presented

**11:15 – 11:30 a.m.      Protoflight qualification and testing of small satellite systems**

**CS = 60**

***\*Jennafer L. Grindrod, Dr. Benjamin Malphrus, Mentor, Department of Earth and Space Science, College of Science and Technology***

Testing and qualification are necessary processes for successful space missions. Extensive vibration and thermal vacuum testing of satellite systems reduces risk and increases the potential for mission success. Vibration testing simulates the effects (acceleration forces, vibration, mechanical resonances) that a rocket launch imposes on a spacecraft. Vacuum testing and thermal cycling prepares the spacecraft for the harsh environment of space. Past experience and understanding of the engineering requirements to survive in the space environment allows for the development of viable and robust systems. Staff and students at the Morehead State University spacecraft verification facility use state-of-the-art equipment to perform protoflight testing to ensure that high quality products are manufactured and have a high probability of on-orbit success. Protoflight testing of various spacecraft performed by the group is described.



**11:30 – 11:45 a.m. MSU’s first femto-class satellite: BeakerSat-1**

**CS = 61**

***\*Jordan Healea , Dr. Benjamin Malphrus, Robert Twiggs, David Mays, Jennafer Grinrod, Yevgeniy Byeloborodov, Mentors, Department of Earth and Space Science, College of Science and Technology***

A team of students and faculty at the Morehead State University Space Science Center are developing one of the first PocketQubes: BeakerSat-1. The approach taken on designing the subsystems bus for BeakerSat-1 is to integrate a circuit with a Pic18F25K22 processor along with circuitry that contains components that will measure values such as: battery current and voltage; on-board temperature of the radio and processor; solar panel voltage, current, and temperature; and external temperature-- providing telemetry for the satellite and space environment monitoring. These values will be transmitted to the ground station via Morse code through an on-board ultra-low power RFM22 transceiver. The delivery date for BeakerSat-1 is May 1st, 2013, and it is scheduled for launch on a Dneper Rocket from Russia in 2013.

**11:45 – 12:00 p.m. Break**

**12:00 – 12:15 p.m. Space mission operations technology at the space science center**

**CS = 62**

***\*Travis S. Miller, Dr. Benjamin Malphrus and Kevin Brown, Mentors, Department of Earth and Space Science, College of Science and Technology***

The Morehead Space Science Center operates a number of ground-based assets that allows the Mission Operations team to perform telemetry, tracking and control (TT&C) services for a variety of satellite missions. Ground assets include the 21 Meter Space Tracking Antenna and two VHF/UHF Ground Stations. These ground assets cover a wide range of radio frequencies and allows the group to service its own nanosatellites and provide services to a variety of customers for orbital and suborbital missions. The Mission Operations team has provided TT&C services for a growing portfolio of space missions including NASA’s Lunar Reconnaissance Orbiter, Morehead State’s Cosmic X-Ray Background NanoSat, EduSat, UniCube GG, and more that are planned including the KySat series of Satellites, CXBN-2 and many others.

**12:15 – 12:30 p.m. Chandra observations of the nearby spiral galaxies NGC 45 and NGC 6946**

**CS = 63**

***\*William P. Moffitt, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science and Technology***

We have analyzed data collected from archival *Chandra* observations made of the nearby spiral galaxies with contrasting star formation rates, NGC 45 and NGC 6946. The effective exposure times for these galaxies were 65 and 173 kiloseconds, respectively. Standard tools in the Chandra Interactive Analysis of Observations (CIAO) software package were used to process datasets, merge images for individual galaxies and search for discrete sources using the wavelet-based CIAO tool “wavdetect.” we find 28 sources in NGC 45 and 84 sources in NGC 6946. We also observed NGC 6946 with the 21-Meter Space Tracking Antenna: we measured a total flux of 1.26 Janskies from the galaxy. Complementary radio observations help investigate star formation rate as a driver for correlating X-ray and radio luminosities of galaxies.

**12:30 – 12:45 p.m.      The discrete x-ray source population of the nearby sculptor group galaxy NGC 55**

**CS - 64**

***\*Jared Napier, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science and Technology***

NGC 55 is an edge-on spiral galaxy located in the Sculptor Group, the nearest major group of galaxies. Lying at a distance of 2.08 Megaparsecs, its proximity makes it an ideal target for a survey of its resident supernova remnant (SNR) population. To detect X-ray emission from SNRs in this galaxy, I have analyzed an archival pointed observation (with an effective exposure time of 60 kiloseconds) made of NGC 55 using the *Chandra* X-ray Observatory. This observation was analyzed using standard tools in the CIAO (Chandra Interactive Analysis of Observations) software package and the wavelet-based detection CIAO tool “wavdetect” was used to identify discrete X-ray sources. Associations were identified between the detected X-ray sources and previously-identified discrete radio sources.

**12:45 – 1:00 p.m.      Observations of the galactic supernova remnant G21.5-0.9 with the *Chandra* x-ray observatory**

**CS - 65**

***\*Biswas Sharma, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science and Technology***

We present a spectral analysis of the X-ray emission from the Galactic supernova remnant G21.5-0.9 using archival datasets generated from observations made with the *Chandra* X-ray Observatory. This analysis includes the study of emission produced by the faint X-ray emitting shell seen in projection around the central pulsar PSR J1833-1034. Our analysis includes applying standard non-thermal models (namely simple power laws as well as commonly-employed synchrotron models) in fitting the spectra from multiple regions of the shell as arranged in azimuth and in radius. As part of this analysis, we have searched for thermal emission from the X-ray shell in addition to the previously-detected non-thermal emission as well as variation in spectral properties across the shell.

**1:00 – 1:15 p.m.      Design and fabrication of Morehead-Rome Femtosat Orbital Deployers**

**CS - 66**

***\*Zachary S. Taulbee, Jeffery A. Kruth, Mentor, Department of Earth and Space Science, College of Science and Technology***

The Morehead-Rome Femtosat Orbital Deployer (MRFOD) is a deployer system for satellites called PocketQubes. The PocketQubes will be deployed by the MRFODs which are contained within a larger microsatellite UniSat-5. UniSat-5 is a 40 kg microsat developed by the University of Rome and Morehead State University and will be launched to LEO by Russian Dnepr rocket in the fall of 2013. The MRFODs were designed, fabricated, and tested at Morehead State University. They are made of a lightweight but solid aluminum alloy to give adequate support to the structure without exceeding mass limitations. A Finite Element Analysis (FEA), was performed using SolidWorks Simulation, a CAD program was used to find the natural frequency modes of the structure, and to visually display loading effects on the structure.

**P - 1****A preliminary examination of sustainable disclosures on fortune 500 company websites****Crager****\*Traci Bard, Dr. Janet Ratliff, Mentor, School of Business Administration, College of Business and Public Affairs**

The purpose of this research study was to examine what Fortune 500 companies are reporting on their corporate websites regarding environmental sustainability activities (actions). Sustainable actions were divided into eight categories: (product, production, plant, supply chain, recycle, consumer, social, and greenwash). Frequencies, chi-square and cross-tab tests of independence were conducted to determine the number of sustainable actions, and whether or not size of the firm or the industry influenced what and how many sustainable actions were posted. Findings suggest that more than three-fourths of companies examined engage in one or more sustainable actions. Furthermore, industry and size of the firm had a direct influence on sustainability reporting. Research was supported by MSU Undergraduate Research Fellowship.

**P - 2****Is dynamic pricing viable for small market collegiate athletics?****Crager****\*Nicholas Mason, Drs. Steve Chen and Kenneth Henderson, Mentors, School of Business Administration, College of Business and Public Affairs**

Sport organizations use dynamic pricing strategies to generate extra ticket revenues. Dynamic pricing is a practice in which price changes based on demands and occasions. This exploratory study reports the results of telephone interviews and survey data collected from twenty mid-west college/university athletic directors and marketing managers regarding their perceptions of the use of dynamic pricing by regional, small-market collegiate athletic programs. Specifically the study examines the perceived benefits and shortcomings of dynamic pricing as well as relates past experiences implementing the strategy. The results find the majority of respondents are receptive to dynamic pricing although they question whether the strategy delivers excessive financial benefits. They also note that the practice of frequent ticket price change is cumbersome.

**P - 3****A community indicators project: Rowan County, Kentucky****Crager****\*Johnathon Dye, \*Taylor Lewis, \*Cody Murphy, \*Laura Pfalzer, \*Chad Wells, RAPP 300, Drs. Christine Emrich and Stephen Lange, Mentors, School of Public Affairs, College of Business and Public Affairs**

Our 2012 Community Indicators Project (CIP) continued a multi-year student project focused on better understanding what factors contribute to quality of life and economic progress in Morehead-Rowan County. The 2011 CIP process established a solid foundation for ongoing indicator work in our community. We continued this effort in 2012 by following the recommendations for future work presented at the end of the 2011 report. Specifically, we (1) updated and refined the community indicator dataset; (2) developed an initial survey framework that future classes can use to collect qualitative information on people's perceptions and values related to community quality of life; (3) produced an updated CIP Report for 2012. This project was partially supported by funding from the Appalachian Regional Commission's Appalachian Teaching Project

**P - 4**      **Exploration of the relationship between mental health and lung cancer mortality in Kentucky**

**Crager**      **\*Alicia Harless, Dr. Timothy Hare, Mentor, School of Public Affairs, College of Business and Public Affairs**

Lung cancer is the major cause of cancer-related deaths worldwide, accounting for 1.3 million deaths annually and Kentucky consistently ranks among the states with the highest rates. Previous research shows that depression is positively correlated with symptom severity and physical limitations among lung cancer patients. We examine the association of mental health, access to mental health care, and geographical factors with age-adjusted lung cancer mortality and morbidity rates. The data are county-level and include factors such as the number of licensed psychologists, the annual number of poor-mental health days, and lack of social-emotional support. Exploratory spatial data analysis reveals weak to moderate associations among the factors assessed. We conclude that poor mental health has a moderate effect on increasing the rate of lung cancer mortality as a proportion of morbidity. This research was supported by a MSU Undergraduate Research Fellowship.

**P - 5**      **The odyssey of Depo-Provera: The FDA, contraceptive choice, and chemical castration**

**Crager**      **\*Rebecca Hopkins, Dr. William C. Green, Mentor, School of Public Affairs, College of Business and Public Affairs**

The odyssey of Depo-Provera is a story of the politics of pharmaceutical risk. In the 1960s, the three month injectable drug, held out the promise that it could play a leading role in the contraceptive revolution, but the controversy over the assessment and acceptability of its risk delayed its licensing as a contraceptive until 1992. Rarely has the drug's national experience been linked to state medical malpractice and products liability issues raised by the risk of breast cancer and osteoporosis from its contraceptive use and to state criminal legal issues raised by its use as a sentencing alternative for men convicted of sexual offenses. This presentation tells a collective story that joins its national controversy to its state civil and criminal legal experience.

**P - 6**      **The story of slavery and the battle lines of the Lincoln-Douglas debates**

**Crager**      **\*Cody Murphy, Dr. Murray Bessette, Mentor, School of Public Affairs, College of Business and Public Affairs**

Scholars have analyzed the Lincoln-Douglas debates from almost every conceivable angle. This is unsurprising given the fact that Lincoln is the second most written about individual in human history (the most written about is Jesus). While most scholarly treatments narrowly focus upon one facet of the debates, this paper takes a broader view. The debates themselves were a public discussion of the most pressing issues of the day: the fundamentals of liberty, slavery, federal-state relations, and the meaning and scope of the ideals of the *Declaration of Independence*. Contemporary Americans, who have been acculturated in the wake of Lincoln's success, perceive these issues with a degree of clarity that did not exist at the time. As a result, it behooves us to attempt to recover the respective positions of these two patriots, if only so as better to appreciate the scale and majesty of Lincoln's accomplishment and to understand the limits of Douglas's proposals.

**P - 7**      **The Hegelian sense of self with regards to wealth in Jane Austen's *Sense and Sensibility***

**Crager**      **\*Laura Pfalzer, Dr. Murray Bessette, Mentor, School of Public Affairs, College of Business and Public Affairs**

Hegelian philosophy shows that one's freedom, even one's mere existence, is interconnected with external property. It is this connection, between the self and property, which influences societal conventions and preoccupies the individual in a relentless acquisition of wealth – even if this means sacrificing character. An examination of Jane Austen's novel *Sense and Sensibility* in light of the Hegelian sense of property depicts this relationship. Through the lives of Austen's characters, which are firmly entranced in a patriarchal society, we begin to see money's firm grasp on the individual, and the willingness of human beings to let material concerns overshadow those of the heart, as they try and cope in a society that does not allow for both.

**P - 8**      **Egypt's runaway revolution: How illiberal elements of Egyptian society captured the reigns of government by democratic means**

**Crager**      **\*Clay Skaggs, Dr. Jonathan W. Pidluzny, Mentor, School of Public Affairs, College of Business and Public Affairs**

This study chronicles the political transformation that began to unfold in Egypt at the beginning of 2011 as a result of popular uprisings, and proceeds to investigate the likely ramifications of what has come to be known as the "Arab Spring." While the revolution was initially led by young modernists intent to liberalize Egypt's government and economy, recent elections and the constitutional convention have been dominated by groups promising to use the power of the government (achieved by democratic means) to promulgate decidedly illiberal policies. This project, generously funded by an Undergraduate Research Fellowship, goes on to consider the likely consequences of the revolution for Egyptians themselves, as well as for American interests in the region.

**P - 9**      **Cancer disparities and the availability of oncology services across Kentucky, 2005-2009**

**Crager**      **\*Chad Wells, \*Porsha Smith, Dr. Timothy Hare, Mentor, School of Public Affairs, College of Business and Public Affairs**

We map the availability of oncology services across Kentucky in relation to elevated rates of cancer morbidity and mortality. We use data from the American Hospital Association Annual Survey to locate all facilities in Kentucky with oncology or chemotherapy services. We use data from the Kentucky Cancer Registry to explore the geographical distribution of cancer morbidity and mortality. The comparison of service availability with health outcomes reveals patterns that help explain the uneven distribution of cancer morbidity and mortality rates across Kentucky. KY Biomedical Research Infrastructure Network (KBRIN).

**P - 10**      **Ceramics facility management experience**

**Crager**      **\*Sabrina G. Goble, Dr. Seth J. Green, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

This experience allowed for exploration and learning of multiple ceramics facility management skills that are necessary to have for the success of studio ceramic artists and instructors.

Specific skills explored and learned included the following: mixing studio clays, slips, and glazes; completing raw material inventories, compiling material orders, and creating proper health and safety labels for using all studio materials; loading and firing electric and gas kilns; replacing kiln elements, relays, and thermocouples.

P - 11

**Appalachian ceramic student outreach program**

Crager

**\*Caitlin J. Slover, Dr. Seth J. Green, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

This project supported local and regional school art programs that have suffered budget cuts inhibiting teachers to offer ample art instruction and travel opportunities for students to receive outside instruction. The ultimate goal of the project was to establish partnerships with regional P-12 art teachers, reach out to art students, and broaden opportunities for students to learn about ceramic art. This project was supported by Morehead State University's Center for Regional Engagement in the form of a Student Regional Engagement Fellowship.

P - 12

**Haunted Houses-A documentary**

Crager

**\*John H. Breeding, Dr. Steven O. Middleton, Mentor, Department of Communications, Media, and Leadership Studies, Caudill College of Arts, Humanities, and Social Sciences**

Short documentary film that explores haunted houses (both novelty and paranormal) across the Commonwealth of Kentucky. Interviews include those who run the haunted houses in the Fall months and those who actually live in the houses. Project will be pitched to Kentucky Educational Television (KET) in the near future. This project was supported by the MSU Undergraduate Research Fellowship

P - 13

**Best practices in student-run collegiate public relations firms**

Crager

**\*Caitlin Farhat, \*Hannah Webb, Randy Manis, Mentor, Center for Regional Engagement and Department of Communications, Media, and Leadership Studies, Caudill College of Arts, Humanities, and Social Sciences**

The primary focus of this research was exploring "best practices" for collegiate student-run public relations firms. To build a foundation for this project, the researchers investigated all aspects of student-run public relations firms starting with guiding documents from the Public Relations Student Society of America (PRSSA). Additional research included, but was not limited to, contacting PRSSA-affiliated student-run agencies. The final report includes: (1) an overview of student-run public relations firms; (2) a list of special challenges related to student-run public relations firms; and (3) an examination of integrating a student-run public relations firm into Morehead State University's PRSSA chapter. This research was supported by the Center for Regional Engagement and MSU Undergraduate Research Fellowship.

P - 14

**Exploring literature curriculum alignment and instructional support for Kentucky English teachers**

Crager

**\*Megan Ison; Kathryn Mincey, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

The recent curricular and accountability changes effected by Senate Bill 1 have had a major impact on language arts teachers in Kentucky. Due to these changes, Professor Mincey and Megan Ison have compiled the results from a survey taken throughout the state of Kentucky to determine texts that are commonly taught, pedagogical practices, and teacher dispositions concerning the Kentucky Core Academic State Standards. The survey focuses on a statewide sample and holds some interesting implications for the field of English Education. This information will be used to inform professional development opportunities hosted by Morehead State University. This project is being supported by the Morehead State University Undergraduate Research Fellowship.

P - 15

**The impact of writing studio on struggling writers: Improving student motivation, confidence, and competence**

**Crager**

**\*Whitney Jones, Julie Rehkamp, Alex Reinke, Dr. Deanna Mascle, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

Many undergraduates arrive on MSU's campus underprepared for college-level writing. During the 2012-2013 academic year, the MWP Writing Studio was piloted to investigate a possible response to this need. We served approximately 100 struggling writers through an on-going writing workshop embedded in their developmental and Early College writing classes. A study of the impact of this work found increases in confidence and competence levels as well as improved student motivation and attitudes. The students' instructors further reported that work in and out of class improved and attributed these gains to the Studio. This work was supported by Center for Regional Engagement Fellowships, a MSU Undergraduate Research Fellowship, and the Morehead Writing Project.

P - 16

**Accents affecting attachment**

**Crager**

**\*Benjamin Lee, \*Bryan Harmon, Dr. Katy Carlson, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

This project explored the effects of prosody, specifically accent placement, on sentence meaning. Given the sentence "John claimed that Mary had arrived last week," the phrase "last week" could modify "claimed" (high attachment) or "arrived" (low attachment). We know that a prosodic boundary, a pause, after "arrived" favors high attachment, though low attachment is generally preferred. We placed accents on either "claimed" or "arrived," hypothesizing that emphasizing a verb might draw attachment to that verb. We found a significant effect of accent position, with the accent on "claimed" increasing high attachments. This finding is novel because accents usually affect processes outside the sentence, but here accents are affecting basic syntactic structure. This research was supported by a KBRIN-AREA Fellowship.

P - 17

**Analyzing the rhetoric of Ann Coulter: America's most infamous/misunderstood political pundit**

**Crager**

**\*James Mills, Dr. Carrie Jo Coplen, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

The relatively young science that is political science has found itself in an interesting marriage with literature, and this genre contains authors who have risen to unprecedented levels of fame or infamy. I will be exploring the specific qualities of the rhetorical strategies present in the works of Ann Coulter, quite possibly the most polarizing political author of the twenty-first century. I will be evaluating her rhetoric at the most basic levels, as defined by Aristotle, and as practiced today, per the definitions of ethos, logos, and pathos by Purdue's esteemed Online Writing Lab. Upon the conclusion of my research, I will assess the value of Coulter's rhetoric, and compare/juxtapose claims and generalizations about her reputation/expertise using only her rhetoric.

P - 18

### **Evolution of the “Hoochie Coochie” show from 1893 to the modern sex industry**

**Crager**

**\*Nikki Cagle, Dr. Kris DuRocher, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

The Hootchie Cootchie dance debuted in the United States at the Chicago World’s Fair in 1893. Performed in the exhibit “A Street in Cairo,” Little Egypt gyrated her way into the hearts and pocketbooks of the white male audience. What started as a seductive belly-dance showcasing the “best” of what Egypt had to offer, later transformed into live strip and sex shows held regularly at rural carnivals and fairs through the 1970’s. The “hootchie cootchie girls” were idolized by young and old men alike, with many spending a half-day’s wages to see a short thirty minute performance. Hootchie Cootchie shows often became the highlight of male youth and their transition into the world of adult sexuality. As the occurrence of carnival strip shows declined, the modern sex industry exploded with video pornography, gentlemen’s clubs, and peep show booths. Although both the occurrence carnival strippers and the modern sex industry have been moderately documented by research such as Robert Allen’s *Horrible Prettiness* and Wendy Chapkis’ *Live Sex Acts*, there is little analysis of how carnival sex shows helped influence, or inspire the modern sex industry. Additionally it is important to draw parallels between the similar roles that carnival sex shows held in former society and modern sex work hold within modern society. Further exploration in this field will allow for a long view of our culture’s fascination with the sex industry. In addition, this research will provide an understanding of how our culture propagates masculine, feminine, and sexual norms. This research was supported by MSU Undergraduate Research Fellowship.

P - 19

### **Who was Jesus of Nazareth and what did he teach?**

**Crager**

**\*Josh Goble, Dr. Wendell O’Brien, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

Most Westerners, religious or not, are familiar with Jesus. Whether or not he is the Son of God is a matter of Theology and will not be included in this research project, since it is concerned with philosophy. The thesis then is this: Roughly 2000 years ago a man named Jesus taught throughout the Middle East. His teachings dramatically changed the world and played a large role in shaping Western culture as it exists in the present. The aim of this research project is to identify what Jesus’ taught and why the message was so effective through analysis of the Gospels and the works of various philosophers such as Fredrick Nietzsche and Leo Tolstoy. This Undergraduate Research Fellowship is being conducted through the Honors Program.

P - 20

### **The war comes to campus: Morehead State and the Vietnam War**

**Crager**

**\*Katherine Diane Messer, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

During the late 1960s and early 1970s, many students across the United States began to feel that university officials were infringing upon their rights. This coupled with the Vietnam War forced students into action. Although a small campus in Kentucky, MSU also experienced these pressures and students began to defend what they felt were their undeniable rights. It was at this time that the college established the ROTC which was mandatory for freshman and sophomore males. Students saw the creation of the military organization as an invasion of their rights. They focused their protest movements on ROTC, along with the administration, especially President Adron Doran. An examination of MSU’s protest movement indicates that activism emerged even on smaller campuses and in many ways, addressed the same fundamental issues as the ones at more urban schools. This research was supported by MSU Undergraduate Research Fellows.



P - 21

**Breaking up is hard to do: Helping low-income families through the *pro se* divorce clinic**

Crager

**\*Paula Jo Roberts, Kelly Collinsworth, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

With the cost of an uncontested divorce being as much or more as one's monthly income, many low-income Kentuckians are unable to sever relationships with their estranged spouses. The *Pro Se* Divorce Clinic allows couples in Northeastern Kentucky to file for divorce, *pro se*, when they would otherwise not have the resources to hire an attorney. Originally operated by Legal Aid of the Bluegrass, the clinic provides participants the ability to complete the necessary paperwork and present the paperwork to the Circuit Judge for a dissolution of marriage. After funding cuts last year required Legal Aid to cease the program, Legal Studies students and faculty agreed to continue the coordination and supervision of the program. Roberts is an Undergraduate Fellow through the Honors Program.

P - 22

**FBI investigation on the consequences of Korean participation in the Vietnam War**

Crager

**\*Lauren Wooten, \*Rebecca Parker, Samantha Ransom, \*Michael Cundiff, \*Matthew Dusing, Brannah Hamilton, Dr. John Ernst, Mentor, His 377: 20<sup>th</sup> Century Asian Wars, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

The Vietnam War, 1955 to 1975, typically considered an American conflict, also included allies of the United States, particularly the Republic of Korea. From 1964 to 1973, 320,000 South Korean soldiers, most of them drafted peasants, fought in Vietnam, with 5,000 fatalities. The primary consequence of their participation remains visible in the veterans who continue to suffer from the physical and psychological side-effects of the toxic chemicals used by the United States, especially Agent Orange. South Korean involvement represented the enduring consequences of war, because of the persisting controversy over prisoners of war, atrocities committed against Vietnamese civilians, and law suits filed by South Koreans demanding compensation for their injuries, influencing South Korea's diplomatic relations established with the United States and Vietnam.

P - 23

**Shortening the throw**

Crager

**\*Adam Dixon, Dr. William Mann, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences**

Since the development of the Axial Flow Valve for the trombone, it has become a common valve that can be found in almost every major ensemble worldwide. As agreed upon by many trombonists who utilize this valve, the most common drawback is the long throw, the distance the valve lever needs to travel, required to engage the valve. The research and development of this project will produce a solution for this drawback and will enhance the Axial Flow valve for trombonists worldwide. This project was made possible from the support of an MSU Undergraduate Fellowship.

**P - 24**      **Producing and releasing a commercial recording**

**Crager**      ***\*Brock O’Cull, Jesse Wells, Mentor, Department of Music, Theatre, and Dance, Center for Traditional Music, Caudill College of Arts, Humanities, and Social Sciences***

The research project will explore all stages of an independent record release and examine the variables of recording music in a quality sound environment; producing a marketable product and methods of distribution through a variety of markets (both physical and digital). This research is supported by the MSU Undergraduate Research Fellowship program.

**P - 25**      **Pedagogical resources for a developed marching curriculum**

**Crager**      ***\*Chris Spivey, Dr. Richard Miles, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences.***

The purpose of this research is to provide a culmination of resources for the Marching Arts. It will cover six components that are important factors in developing a strong curriculum for Marching Band. In addition to the compilation of resources, a video program will accompany this text as a visual aid for the education of the physical aspects of the Marching Band Fundamentals. These fundamentals are based on the Corps Style Marching, by esteemed experts of the past 40 years. This research is supported by the MSU Undergraduate Research Fellowship.

**P - 26**      **Tattoos as personal agency among incarcerated men: An Afrocentric perspective**

**Crager**      ***\*Elanje Flowers, Dr. Rebecca S. Katz, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

In interviews with nine incarcerated men, findings reveal men resist the domination and subordination of their bodies and minds through the use of inscribing ink on their bodies. In the context of a total institution with few individual freedoms and a hierarchy dominated primarily by white men, African American men resist claims on their autonomy and independence through participating in body art or body modification. Finally, tattooing represents an attempt to inscribe both memories and identity on the only truly owned physical space of one’s body. We use this deconstruction and understanding of incarcerated men’s tattoos to argue for the demise of the dehumanizing experience of incarceration. This research was supported by MSU Undergraduate Research Fellowship.

**P - 27**      **The causal links in incarceration rates of males and females in the United States**

**Crager**      ***\*Demi Jacques, Dr. Elizabeth Perkins, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences***

There is a very high rate of incarceration in the United States. This study will explore the similarities and differences between men and women in prison today by surveying both populations. The survey will address issues such as a history of abuse, substance use, mental illness, recidivism, social class and more in order to gauge the variances between the genders in prison. The survey will also explore conditions in prisons, such as healthcare, programming and mental health care. The rate of women going to prison is rising and this study will attempt to uncover factors contributing to this shift by comparing both conditions leading to incarceration as well as experiences in prison for both genders. This study was supported by MSU Undergraduate Research Fellowship.

P - 28

**Identification of resource disparities in the gateway service region: A needs assessment**

**Cragger**

**\*Tina Jones, Dr. Lisa Shannon, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences**

Each year, the Gateway Community Action Council conducts a needs assessment to identify resource disparities and aid in developing a strategic funding plan. This plan serves Bath, Menifee, Montgomery, Morgan, and Rowan Counties. Data for this poster was gathered from 381 clients who completed the Gateway Community Action Council Clients Needs Assessment. The mean age of the participants was 50.01 years (SD=17.937). Nearly half (46.2%) reported an income less than \$10,000 per year. The majority of respondents were female (76.1%) and Caucasian (94.0%). Over one-third (35.2%) were married and resided in Montgomery County (36.7%). The most commonly selected needs were emergency services (35.3%), and employment (12.3%). Project support came from a MSU undergraduate research fellowship from the department of Sociology, Social Work, and Criminology.

P - 29

**Personal trauma: A double-edged sword for substance abuse counselor's working with offenders**

**Cragger**

**\*Sonja Pennington, Dr. Elizabeth Perkins, Mentor, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences**

I assisted Dr. Perkins with the qualitative analysis of 20 qualitative face-to-face interviews conducted with substance abuse counselors who work with offenders. The rate of offenders seeking substance abuse treatment is rising, which results in substance abuse counselors facing increasing caseloads putting them at higher risk for burnout and compassion fatigue. Substance abuse counselors are thought to be especially vulnerable to compassion fatigue due to the high percentage of clients they treat who have trauma histories. The purpose of this study was to investigate if substance abuse counselor burnout and compassion fatigue vary between counselors who work in a prison versus those who work in community care with offenders. Five major themes emerged from the data. This research was supported by MSU Undergraduate Research Fellowship.

P - 30

**Analysis of authentic Korean vs. Euro-American versions of the "Cinderella" folktale by gifted students in grades 4 and 5**

**Cragger**

**\*Lisa A. Bryant, Dr. Mee-Ryoung Shon, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

Cultural diversity in the classroom prepares students for an increasingly multifarious world. One approach of incorporating diversity is via reading folktales of various cultures. Interpreting folklore, students learn traditions, values, and beliefs of people that are divergent of their own, resulting in broader understanding, acceptance, and a stronger embrace for diversity. However, many folktale versions are altered by the author and may not accurately represent the culture being studied.

Students from Rowan County, KY in grades 4 and 5 who have been identified as gifted read two accounts of the *Korean Cinderella*: the authentic Korean story, *Kongji and Patji* and a Euro-American interpretation of that story, *The Korean Cinderella* by Shirley Climo. As a group, students prepared graphic organizers to analyze the stories and classify implicit and explicit similarities and differences, with an extension of brainstorming reasons why certain aspects of the story were modified.

**P - 31**      **The effect of a reward system on student behavior**

**Crager**      ***\*Brooklynn Castle, \*Brooklyn Kendall, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

Teaching a classroom that has issues with behavior can be almost impossible. Teachers and other school personnel are always looking for ways and ideas to improve students' behavior and maintain good classroom management. In this action research project, data was gathered from a classroom management system that was already installed in a third grade classroom. After two weeks, the award for good behavior was changed from weekly, to daily. Data was then collected to see if a more frequent rewarding system had an impact on student behavior.

**P - 32**      **Glimpses in the past: Change and continuity in the schoolhouse**

**Crager**      ***\*Katarina Chalk, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education***

From the Rowan County War in the 1880's to World War II in the 1940's, education in Rowan County changed dramatically. In early years, children were taught in one room school houses and eventually, with the development in education and the war, schools were consolidated . Using footage from the 1940's in Rowan County schools and interviews, a picture of the past emerges that documents the strengths of the one room school and the changes that emerged with consolidation.

**P - 33**      **Incorporating energizers into the classroom**

**Crager**      ***\*Annie Clark, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

An energizer is a tool used by a teacher to keep a class focused on learning and behavior as they go through the day's instruction and activities. An energizer can be jumping jacks, body twisted, toe touches, or anything that takes the students from a sedentary position and gets them moving. Not everyone believes that the time spent on energizers is worth it, so research was conducted to determine the effectiveness of classroom energizers. Energizers were added to a third grade routine to see if it would improve student behavior during transitions of whole group instruction. Data was collected for three weeks on how many times the students were disciplined for off-task behavior. This data served as the control group. After three weeks, the energizers were put into place for another three weeks and data was collected. Comparison of the control data and intervention data provided positive results.

**P - 34**      **The effects of summarizing on Accelerated Reader™ scores**

**Crager**      ***\*Amy Clausen, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

Upon noticing that students in a fifth-grade general education classroom were failing a high percentage of tests taken on the Accelerated Reader program an intervention was implemented that required students to orally summarize the book they read prior to taking the Accelerated Reader test. Data was collected for the two weeks prior to the intervention and the two weeks during the intervention. Data showed that the percentage of tests failed decreased upon the implementation of the summarizing intervention.

**P - 35**

**Lining up in the classroom**

**Crager**

**\*Shelley Fannin, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

Student learning is directly affected by the amount of time spent focusing on instruction in the classroom. In classrooms with young children, lining up and washing hands prior to lunch can decrease crucial instructional time. Creating an appropriate routine for lining up is a classroom management skill that is suggested as an effective method of creating more time in the instructional setting and less time wasted. Procedural data, collected in a Kindergarten classroom, determined which of two routines was most effective in regard to time spent lining up and washing hands prior to lunch. An analysis of procedural process time recorded before and after the intervention, found that an increase in instructional time occurred when procedures were routinely followed. These results influenced classroom routines and practices.

**P - 36**

**The effects of visual aids in the classroom**

**Crager**

**\*Sara Frisby, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

Redirection and prompting are used by many teachers to gain students' attention and to make sure they are meeting expectations. Instead of prompting, visual aids can give students the direction without the teacher constantly repeating instruction. The use of visual aids in the classroom can not only promote better student performance, but can help students who are visual learners. Spelling is one area where students need visual and tactile materials. This project examined the use of visual aids as a reduction for the amount of times students asked to spell a word. By making a small checklist to put on students' desk of things to do to spell a word, we ensured that students were trying each item before asking for assistance. The fewer times the students asked for assistance from a teacher, the more independent the students became and the teacher can get through more content instruction in the day.

**P - 37**

**Action research: Individual student rewards will improve behavior**

**Crager**

**\*Shelby Fugett, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

Success and student learning in the classroom is dependent upon the amount of time that a student spends on-task and paying attention during instructional time. On-task student behavior is modeled by listening, participating, and completing the assigned work. Students who are not on-task risk falling behind. Data was collected to determine if an individual student rewards discipline model would improve on task behavior in the classroom for a particular student. Data was collected before and after student rewards were implemented.

P - 38

**From zero to zoom: Read, write, publish: Lessons from a child**

**Crager**

**\*Laura J. Geiman, Dr. Martha M. Decker, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

The reading - writing processes of 18 first graders in rural Appalachia are examined during an entire school year. The developmental changes over time in these student's reading and writing abilities are closely investigated. The foundational theories of Dewey, Vygotsky and others from over a century ago, along with current findings in cognitive and neuro-science (Davidson, Armstrong) that substantiate these theories, provide the conceptual framework for this study. Through weekly observations I am learning how instruction must not be one size fits all, and that the teacher must highlight the students' individual strengths. Using Universal Design for Learning (C.A.S.T.; Rose) my findings include seeing marked growth in all students as well as my own. This research was supported by MSU Undergraduate Research Fellowship.

P - 39

**What are the benefits of origami in the early childhood classroom?**

**Crager**

**\*Caroline Heston, Dr. Mee-Ryoung Shon, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

The purpose of this project is to investigate if origami paper folding enhances children development. Dr. Shon and I have visited the kindergarten classroom at Rodburn Elementary and implemented origami activities on weekly basis. We have introduced step-by-step charts as visual cues for children to follow. As time passed, children demonstrated increased understanding on math language (direction, sequence, position, comparison, size/shape) as well as other areas of developments (eye-hand coordination, attention time span increase, self-help skills, social interaction through paper folding process.) This project enhanced children's multiple ways of learning followed by Gardner's Multiple Intelligence Theory in terms of linguistic, logical-mathematical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal intelligences. Support for this project is provided by the Undergraduate Fellowship Program.

P - 40

**Writing for a purpose**

**Crager**

**\*Madeline Jenne, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

It is necessary for students to begin practicing literacy skills at a young age. By teaching children the alphabet, phonemic awareness, and phonics they will begin building upon these skills in order to progress in their learning. Reading and writing go hand in hand. Students should practice writing every day and the more the basics are reviewed, the more the children will retain. A way to encourage writing repetition and practice is through daily journal writing. The students can learn the skills and techniques needed in order to become a more productive and meaningful writer. When students have a specific interest or a purpose for writing, they can relate to what is being discussed. This stands as motivation and allows the children to use their imagination, while putting their thoughts on paper. This research project explored how writing for a purpose influences skill acquisition. Data was collected both before and after implementing purposeful strategies. The results of Writing for a Purpose were shown as positive. There was a 100% improvement in over 50% of the specific skills practiced.

**P - 41**

**Assessments of early numeracy**

**Crager**

**\*Kelsey Koontz, Dr. Edna O. Schack, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

The focus of this research project is the development of the skills of early numeracy through specific small group instruction strategies. To gather this data a class of first grade students was assessed using the Student Numeracy Assessment Progressions mathematical interviews. Professional Noticing (attending, interpreting, and deciding) was implemented during the diagnostic interviews. Attending refers to seeing the strategies used by students to solve the problems. Interpreting is an awareness of the child's abilities in the context of the mathematics. Deciding refers to making instructional decisions. Following the SNAP assessments a group of children in need of intervention was identified. A set of pre-planned strategies focused on a few specific early numeracy categories will be implemented with this small group. A matched group with similar pre-assessment scores will not receive any intervention. The changes in scores following the treatment period will be analyzed to indicate the effectiveness of the targeted strategy intervention.

**P - 42**

**Strategies to help students with AD/HD stay on-task**

**Crager**

**\*Taylor Lambert, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

Students with AD/HD tend to have a hard time staying on-task during classroom instruction time. According to research there are various teaching strategies that can increase on-task behavior when it comes to students with ADHD. When students become off-task it does only affect their learning but also their peers' learning, therefore it is important to keep ADHD students on-task as much as possible. The research project investigated the effectiveness of on-task behavior strategies.

**P - 43**

**Here's your hall pass**

**Crager**

**\*Chace McKenzie, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

It has been argued that hallway behavior in elementary school helps train people for everyday social norms. A simple trip down the hall can teach students to wait in line, take turns, and be respectful of other people. Students learn to speak softly and take the needs of other classrooms into consideration as they move through school hallways. However, oftentimes, students misbehave and do not understand the importance of hallway practices and procedures. An action research project was developed to understand the effect of rewards and punishments on improving hallway behavior. Modeling, practicing, and class discussions all played a major role in the research. As hypothesized, when more emphasis was placed on common area rules, fewer interruptive incidents occurred.

**P - 44**

**Implementing out of the classroom activities as a behavior tool**

**Crager**

**\*Kayla Robinette, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education**

Positive reinforcement reward systems are used by many teachers because they are believed to be an effective tool in classroom management. The connection between engaging instruction and positive reinforcement is often blurred. In order to provide students with the best education possible, teachers need to be able to think outside of their classroom walls and foster learning through multiple types of instruction. A great way to manage student behaviors, as well as engage the students academically is by implementing fun out-of-class activities. Research conducted in a third grade classroom found evidence that on-task behaviors in young students had a 30% increase after the administration of an outdoor activity reward system. Special thanks to the Rowan County School District for supporting my research.

P - 45

### **Get your wiggles out**

**Crager**

***\*Kelsey St. John, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

In a kindergarten classroom, there are usually behavior problem as children learn to be students. Typically, teachers use a card flip system to monitor misbehavior. One kindergarten classroom appeared to have an inordinate amount of card flips due to students being out of their seats or becoming rowdy during whole group instruction. Curious to see if the number of card flips was in any way related to how much time students have to be active during the day, the number of card flips during a three week period was tracked. An average of seven card flips occurred each day. During the next phase, activity breaks, or thirty-second-movement periods, were incorporated into the classroom routine Data collection after the intervention was implemented revealed that fewer card flips occurred, with the daily average of four.

P - 46

### **Classroom seating arrangements: Rows vs. Groups**

**Crager**

***\*Jessi Tevis, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

Research was conducted on the effect of classroom seating arrangements on student behavior. In a fourth grade classroom, data was collected over the period of six weeks. During the first three weeks, the class of 25 was arranged into groups of 4-5 students. The class' reward system, "smileys" were used to measure behavior, the number of "smileys" each student had at the end of the week was recorded. The same was done with the class arranged into rows for the following three weeks. After the six week period, the results were analyzed and the data showed a surprising result: students behaved better when placed in groups.

P - 47

### **Action research: Intermittent reinforcement**

**Crager**

***\*Morgan L. Ulery, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary, and Special Education, Professional Partnership Network, College of Education***

Teachers are always looking for ways to improve student behavior. Often, students feel like when they are in hallway it means that it is social hour. Does a given reward (a prize or treat) improve the behavior of the entire class, or will there still be students who do not follow proper hallway procedures? An action research project examined whether intermittent rewards would improve student behavior. By observing and recording students' behavior over a 20 day period, both before and after intermittent rewards were introduced, the data supported the implementation of an intermittent reward system.

P - 48

### **Building reading stamina increases reading comprehension**

**Crager**

***\*Maria White, Dr. Kimberly Nettleton, Mentor, Department of Early Childhood, Elementary and Special Education, Professional Partnership Network, College of Education***

Reading stamina is the number of minutes that one can read without getting distracted. Stamina increases the longer that the individual focuses on the material being read. The more that a student's stamina increases, the more the student is being able to read and, hopefully, comprehending what they are reading. A specific school in the county is interested on finding out whether reading stamina and reading comprehension have a correlation. Data was collected to conclude that higher reading stamina creates higher reading comprehension. Likewise, a decrease of reading stamina can affect reading comprehension level. Sustained silent reading has been added to part of the daily school routine in hopes that reading stamina will increase.



**P - 49**      **Student perceptions of one-to-one iPad implementation**

**Crager**      ***\*Megan Brewington, Krista Barton, Director, 21<sup>st</sup> Century Education Enterprise, Dr. John Curry, Mentors, Department of Foundational and Graduate Studies in Education, College of Education***

Mason County High School in, Maysville, KY embarked this year on a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. Currently, this implementation is ranked the 89<sup>th</sup> largest in the world (Forbes). This presentation will discuss qualitative data collected in the first year. The data point included is the effect on student perceptions from the one-to-one iPad implementation that took place this current school year. Morehead State University College of Education sponsored this research through the Undergraduate Research Fellowship program.

**P - 50**      **The pedagogical uses and benefits of using music to teach social issues**

**Crager**      ***\*Rachel A. Bender, Dr. Kimberlee Sharp, Mentor, Department of Middle Grades and Secondary Education, College of Education***

There are seven problematic areas of culture that social studies teachers must address, according to Maurice P. Hunt and Lawrence E. Metcalf's book *Teaching High School Social Studies* (1968). These problematic areas include social aspects such as religion and morality, economics, patriotism, and social class. In order to address these controversial issues in a way that middle and high school students can easily relate to, our research has focused on the use of music in the social studies classroom. By researching social themes in an array of music genres and pairing them with the seven problematic areas, we are exploring the educative and intellectual benefits of utilizing music in the social studies classroom. This research will be used to create a classification scheme for choosing relevant music for the classroom, as well as teaching strategies for implementing such music into the lesson. This research is supported by Morehead Undergraduate Research Fellowship.

**P - 51**      **Using iPad apps to support curriculum in fourth grade**

**Crager**      ***\*Emily Bodenlos, Dr. Lesia Lennex, Mentor, Department of Middle Grades and Secondary Education, College of Education***

iPad apps were used in fourth grade classrooms to support curriculum in science, social studies, and language arts. One science app, Pangea Safari, was used in this classroom. A media-sharing program, VoiceThread, was used as a pretest and posttest. It was chosen to help students develop skills in expressing ideas. Fourth grade teachers used the VoiceThread iPad app to implement it in the classroom. These apps were used during an 8 week unit on biological change, chosen based on a need area when reviewing NCLB test scores for the previous year, 2011-2012. Apps were used weekly with another fourth grade classroom in order to support fourth grade science curriculum. Research is currently in progress on this project. This project was made possible by UG Fellowship, CRE Grant.

**P - 52**      **An educational social networking website: Analyzing Menifee County Middle School's use of Edmodo**

**Crager**      ***\*Jaime Chapman. Dr. Jody Fernandez, Mentor. Department of Middle Grades and Secondary Education, College of Education.***

Edmodo is a free social networking website that allows teachers to interact with their students on different levels. Edmodo allows teachers and students to communicate via a safe internet site. Along with calendars of due dates and reminders, students and teachers can post podcasts, articles, links, pictures, graphs, assignments, videos, and documents. This interactive website was one of the teaching strategies implemented at Menifee County Middle School during the 2012-2013 school year as part of a content area literacy initiative. The goal of this research was to investigate the use of Edmodo to meet student needs and improve literacy in the classroom. The overall Menifee content literacy initiative was implemented via a CCLD grant. An undergraduate research fellowship supported the research on Edmodo.

**P - 53**

**Farmer's willingness to grow biomass for energy production: The Kentucky case**

**Crager**

**\*Austin P. Jacobs, Dr. Tyler B. Mark, Mentor, Department of Agricultural Sciences, College of Science and Technology**

By 2025, Kentucky's goal is to derive 12% of its motor fuels demand from biofuels. Biomass has numerous potential uses in the bioenergy area such as the production of ethanol or burn for heat. The primary focus is assessing the potential producers understanding of biomass production, processing, and willingness to produce. 1,000 surveys were mailed out to producers to gauge the aforementioned understanding. Of the 1,000 producers surveyed 226 responded with usable data from 197 responses, from 42 of the 48 counties. There was 19.7% return rate with the usable responses. Qualitative choice models are used to analyze the data. These models aid in the determination of the factors that make producers more or less likely to produce biomass for conversion to bioenergy.

**P - 54**

**The limited training background of retired racing greyhounds and its effect on obedience to commands**

**Crager**

**\*Lauren McCauley, Dr. Kimberly Peterson, Mentor, Department of Agricultural Sciences, College of Science and Technology**

Retired racing greyhounds have little exposure to basic household commands. Knowing common commands may ease the adjustment from the racetrack to home life. The length of time it took individual dogs to give an immediately obedient response to commands was measured. Three dogs were followed through a twelve week training cycle conducted at a Youth Development Center. The commands including stairs, leash manners, "shake", houstraining and "crate-up" were tested to evaluate the obedience response. The responses to the commands were found to range from a total disobedient response to shake, to an immediately obedient response to being houstrained. Limited previous exposure to commands appeared to lengthen the time to achieve obedience. The research was supported by The Center for Regional Engagement Undergraduate Research Fellowship.

**P - 55**

**Population issues in the current equine industry**

**Crager**

**\*Rebekkah McCoy, \*Shawn Tyler Moore, Dr. Tammy Platt, Mentor, Department of Agricultural Sciences, College of Science and Technology**

Globally, horse slaughter is a topic receiving considerable press. One point of contention is whether horses are companion animals or livestock. Since the closing of American slaughter facilities in 2007, approximately 80,000 horses, previously sent to slaughter, are added to the equine population annually. There are alternative methods to slaughter available for these horses such as, re-homing, utilizing rescue operations or euthanasia, however, these options have limitations. If this issue does not receive attention directly, the welfare of these horses and the future of the equine industry could be in jeopardy. Continued research is needed to discern a suitable solution to this issue.

**P - 56**

**Observing performance and immunological response of swine that receive equine plasma from horses immunized with modified live Porcine Reproductive and Respiratory Syndrome Vaccine<sup>1</sup>**

**Crager**

**\*Russell Miller, Dr. Duane E. Chappell, Mentor, Department of Agricultural Sciences, College of Science and Technology**

Porcine Reproductive and Respiratory Syndrome “PRRS” is a disease that drastically affects pregnant sows and growing piglets. Recent studies have determined that economic losses from this virus have reached \$641 million dollars annually. In order to address this situation, studies have been focused on linking the inoculation period in relation to performance variance. Our objective was to observe the characteristics displayed after passive administration of equine origin PRRS antibody on humoral and cell mediated immunity. The study included two separate phases of 24 and 30 Yorkshire Cross, weanling piglets that came from a PRRS vaccinated, field virus negative herd. Each phase was inoculated with either: placebo, equine plasma from horses not immunized with PRRS vaccine, equine plasma from horses immunized with PRRS vaccine or modified live Porcine Reproductive and Respiratory Syndrome Vaccine<sup>1</sup>. Weekly intervals were used to measure the rate of growth, collect blood for serum samples and administer intradermal injection of PRRS antigen to evaluate delayed type hypersensitivity. This project was funded by Mg Biologics and MSU Undergraduate Research Fellowship.

<sup>1</sup>Inglevac PRRS MLV “Porcine Reproductive and Respiratory Vaccine” Boehringer Ingelheim.

**P - 57**

**The use of shade shelters by horses under varying environmental factors**

**Crager**

**\*Brooklyn D. Samons, Courtney N. Vance, Dr. Tammy M. Platt, Mentor, Department of Agricultural Sciences, College of Science and Technology**

As overheating has become a serious hazard for livestock in hot and humid climates, laws and regulations have emphasized the importance of shade and shelter in outdoor environments. In a varied climate such as Eastern Kentucky, the need for such shelters by horses has come under question. Through 24-hour motion tracking cameras posted near the shelters, this study monitored and recorded the weather and temperature patterns in association with the use of the shelter by Morehead State University’s equine herd. From these observations, it was found that the use of the shelters was independent of environmental factors. This project was a product of the Department of Agricultural Sciences and the MSU Honors Program and was partially funded by donations from the Kentucky Horse Council.

**P - 58**

**Experimental design for an observational study examining equine use of shelters**

**Crager**

**\*Courtney Vance, Brooklyn Samons, Dr. Tammy M. Platt, Mentor, Department of Agricultural Sciences, College of Science and Technology**

USDA regulations require research animals be provided with shade to reduce incidence of heat-stress. An observational study was conducted to evaluate conditions that result in horses standing under shelters for shade purposes. The study was conducted at Morehead State University’s DAC. Trail cameras containing memory cards were placed where both shelters could be observed. Photos were downloaded weekly and subsequently reviewed. Occurrences of horses standing in shelters were recorded and these data were paired with weather data from both the cameras, as well as local weather data and results were analyzed accordingly. Some limitations included the quality of night photos being too low to identify individual horses and spider infestation of equipment. This project was partially funded by donations from the Kentucky Horse Council.

P - 59

**Study of sustainable green building in the Eastern Kentucky region**

Crager

**\*Robert Spencer, Dr. Sanjeev Adhikari, Mentor, Department of Applied Engineering and Technology, College of Science and Technology**

Green building technology is studied in Eastern Kentucky region. Residential home can construction with renewable energy sources such as wind, hydropower, geothermal and solar energy. Building can also construct with the use of Energy Star appliances, such as refrigerators, stoves, deep freezers. Energy Star appliance help to reduce at least 15-20% energy than a conventional appliance. Green building recycled materials and energy saving such as windows doors and devises can be used. Boone Tavern located in Berea Kentucky is example of Green Building.

P - 60

**Application of computational fluid dynamics to fault analysis in HVAC system design of heavy equipment**

Crager

**\*Charles M. "Matt" Watson, CTM, Dr. Nilesh Joshi, Mentor, Department of Applied Engineering and Technology, College of Science and Technology**

The focus of this presentation is on demonstrating the use of computational fluid dynamics (CFD) to solve real-world engineering design problems and how this approach can perform design fault analysis quickly in a virtual environment. The use of virtual environment can help save countless hours by minimizing physical prototyping. Our case study shows that we were able to identify the problem with the HVAC system design of a heavy equipment with CFD simulation on 3D CAD models, and ultimately we were able to re-design the system to obtain the best possible airflow. The integrated CAD/CFD analysis approach required minimal field testing of current equipment, thus minimizing the overall cost of the redesign.

P - 61

**Design of a solar testing facility at Morehead State University**

Crager

**\*Brandon Scotty White, \*John Haughery, Dr. Hans Chapman, Mentor, Department of Applied Engineering and Technology, College of Science and Technology** (Scotty White and John Haughery are both graduate students at the Department of Applied Engineering and Technology)

Increasing energy demand and cost have heightened the need for more research in alternative renewable energy sources. Outdoor testing of solar systems has challenges due to uncontrollable atmospheric factors, such as wind, cloud cover, and humidity. These challenges make a strong case for indoor-testing facilities where the ambient conditions can be controlled with the appropriate equipment. This work focuses on the design of a stand-alone solar testing center for MSU. The proposed eco-friendly design will house research and data collecting stations as well as incorporate equipment for enhanced monitoring and improved performance predicting capabilities. It is envisaged that the solar testing facility will serve a broader impact as a research and learning experience for practitioners and students interested in alternative energy sources.

This research is supported by the MSU Undergraduate Research Fellowship and a grant provided by the MSU Office of Research and Sponsored Programs.

P - 62

**Quantitative analysis of manganese(II) ion leaching from coal combustion by-products at MSU's heating plant**

Crager

**\*Michael Blake Cantrell<sup>1</sup>, Drs. Zexia K. Barnes<sup>1</sup>, Nathan L. Coker<sup>1</sup>, Ann M. MacIntosh<sup>1</sup>, Jennifer M.K. O'Keefe<sup>2</sup>, Mentors, <sup>1</sup>Department of Biology and Chemistry, College of Science and Technology, <sup>2</sup>Department of Earth and Space Science, College of Science and Technology**

Coal combustion by-products (CCBs) find a plethora of applications in the manufacturing of consumer products. Unfortunately, this form of recycling is not without its problems. It is of pivotal importance to evaluate the environmental impact and fates of leachable heavy metal ions, specifically,  $Mn^{2+}$ , which is contained within the CCBs. This is accomplished through the quantitative analysis of manganese(II) ion concentration in nitric acid solutions of the CCBs using inductively coupled plasma – optical emission spectroscopy (ICP-OES.) With this information available, the plausibility of using CCBs can be effectively determined. This work was funded by a USGS NCRDS grant.

P - 63

**Quantification of Socs2 mRNA expression and cell type identification in *Xenopus laevis* after spinal cord injury**

Crager

**\*Harley J. Davis, Dr. Kurt M. Gibbs, Mentor, Department of Biology and Chemistry, College of Science and Technology**

*Xenopus laevis* tadpoles can regenerate spinal cord axons after complete transection but fail to do so as adults. We previously found Socs2 messenger RNA (mRNA) expression increased in the tadpole hindbrain (origin of regenerating neurons) after spinal cord injury using microarray analysis. The goal of this study is to more accurately quantify Socs2 mRNA expression using qRT-PCR, and identify the cells in the hindbrain that express Socs2 using in-situ hybridization. The results obtained from this work, along with additional work in our lab, will help us determine how Socs2 contributes to axon regeneration. This work was funded by National Institute of General Medicine Grant# 8P20GM103436-12.

P - 64

**Optimizing PCR of randomized oligonucleotide template for RNA libraries**

Crager

**\*Haley E. Dyer, Ellen M. Kolb, Dr. Craig Tuerk, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The long-term goal of this project is to create randomized RNA libraries containing numerous ( $10^{15}$ ) sequences from which individual molecules can be isolated that: 1) bind with high affinity to small molecules (MW 500-800 daltons), 2) cross-link through a reactive end-group to that bound small molecule. This final step would allow novel isolation of small molecules that interact with specific targets, pharmaceutical or diagnostic. The immediate goal within the scope of this undergraduate project is to amplify oligonucleotide templates to optimize diversity (maximum number of different sequences) and purity (uniformity of size and constant regions required for replication). Pilot assays are being conducted to optimize both diversity and precision during amplification using PCR to be followed by large-scale transcription to create the RNA library.

P - 65

**Determination of the zinc susceptibility profiles of *Pseudomonas aeruginosa***

Crager

**\*Jessica N. Farrell, Dr. Matthew L. Ellison, Mentor, Department of Biology and Chemistry, College of Science and Technology**

*Pseudomonas aeruginosa* is a bacterium found in a variety of niches. In order to survive, this organism can obtain essential nutrients, such as zinc, from its environment while at the same time preventing the metal from accumulating to toxic levels. To better understand how this organism maintains zinc homeostasis, we have begun screening a mutant library to identify genes that encode products that prevent zinc toxicity. Screening 6,000 plus mutants, we have identified 85 potential genes required for zinc resistance. We are currently determining the susceptibility profiles of these genes to understand their role in zinc homeostasis. This work was supported by KBRIN-INBRE (National Institutes of Health Grant 8P20GM103436-12). JNF is supported by the Honors UG Research Fellows program.

P - 66

**Transcriptome analysis and differential gene expression of *Acinetobacter baylyi* in response to DNA damage**

Crager

**\*Joshua C. Ferrell, James A. Bradley, Dr. Janelle M. Hare, Mentor, Department of Biology and Chemistry, College of Science and Technology**

*Acinetobacter baylyi* ADP1 does not encode LexA, and UmuDAb is required for *ddrR* induction. These features are atypical of an SOS response, and prompted us to analyze the DNA damage transcriptomes of ADP1 and *Acinetobacter baumannii* and examine if the genes induced are conserved within the genus. In *A. baylyi*, 66 genes were induced after DNA damage. Twelve percent were regulated by only *umuDAb*, 23% by only *recA*, 41% by both, and 23% were regulated by neither gene. In *A. baumannii* 152 genes were induced. All were dependent on *recA*, 20% also required *umuDAb*, and the multiple *umuDC* operons were all induced and dependent on *umuDAb* and *recA*. These results indicate different DNA damage regulons and regulatory pathways in these species. This work was supported by NIH grants 1R15GM085722-01 and 2P20RR016481-09.

P - 67

**Leachability of chromium from coal combustion by-products in basic conditions**

Crager

**\*Anne M. Gruenschlaeger, Drs. Zexia Barnes, Nathan Coker, Ann Macintosh, Mentors, Department of Biology and Chemistry, College of Science and Technology**

Combustible coal by-products (CCBs) result from incinerating coal for energy and are sometimes used in products like concrete and roofing tiles. Depending on the environmental pH, leachability of certain metals from these by-products may be enhanced, which may lead to toxic amounts of chromium in the environment. This study was performed by introducing the CCBs to a known concentration of basic solution. The samples were then tested for chromium concentration using an inductively coupled plasma optical emission spectrometry (ICP-OES). The results from the study appeared to show results below limit of detection for chromium concentration in basic pH. The low levels of chromium show that CCBs are potentially safe for basic environment applications.

P - 68

**Leachability of lead from coal combustion by-products in basic conditions**

Crager

**\*Ethan W. Hawkins, Drs. Zexia Barnes, Nathan Coker, Ann Macintosh, Mentors, Department of Biology and Chemistry, College of Science and Technology**

Combustible coal by-products (CCBs) result from incinerating coal for energy and are sometimes used in products like concrete and roofing tiles. Depending on the environmental pH, leachability of certain metals from these by-products may be enhanced, which may lead to toxic amounts of lead in the environment. This study was performed by introducing the CCBs to a known concentration of basic solution. The samples were then tested for lead concentration using an inductively coupled plasma optical emission spectrometry (ICP-OES). The results from the study appeared to show results below limit of detection for lead concentration in basic pH. The low levels of lead show that CCBs are potentially safe for basic environment applications.

P - 69

**Expression profiling of microRNA 133b after spinal cord injury in *Xenopus laevis* tadpoles and adult frogs**

Crager

**\*Minus R. Helton, Dr. Kurt M. Gibbs, Mentor, Department of Biology and Chemistry, College of Science and Technology**

MicroRNAs (miRNAs) post-transcriptionally regulate gene expression, showing strong conservation of function from round worms to mammals. Our previous work in zebra fish, a species that can regenerate its spinal cord into adulthood, showed that miR-133b played an important role in spinal cord regeneration after injury. *Xenopus laevis* tadpoles have the ability to regenerate their spinal cords, but lose this ability to do so after metamorphosis. In our current study, we used quantitative real-time polymerase chain reaction (qRT-PCR) to determine the expression of miR-133b in spinal cord injured tadpoles and adult frogs. We compared the relative expression of mir-133b at various time points after injury to determine if the expression of miR-133b can be correlated with the developmental decline in spinal cord regenerative capacity. This work was funded by National Institute of General Medicine Grant# 8P20GM103436-12.

P - 70

**Effects of yellow pan trap color in assessment of beetle diversity in Daniel Boone National Forest**

Crager

**\*Tiffany Hunter, \*Brian Wulker, Dr. Sean O'Keefe, Mentor. Department of Biology and Chemistry, College of Science and Technology**

Biodiversity is a fundamental assessment for conservation purposes. Beetles are an ideal group to use for biodiversity assessments because they are extremely diverse, very abundant, fill numerous ecological roles, can be assessed quantitatively and qualitatively via many means, and are relatively easy and inexpensive to collect. The purpose of this study was test the effectiveness of using yellow pan traps to sample a wide variety of beetles. Yellow pan traps have often been used for sampling flies and wasps, but rarely for beetles. Sampling was conducted at three study sites in the Daniel Boone National Forest during the summer and fall of 2012. As of now, a sufficient number of specimens from this period have been prepared for assessment. Biodiversity analyses include the standard Shannon and Simpson indices, and Hill's modification. Taxonomic and functional group diversities are also being explored between pan trap colors.

P - 71

**PCR detection of antibiotic resistance genes in DNA extracted directly from stream samples**

Crager

**\*Marisa Kamelgarn, \*Kasey Reed, \*Natasha Whitt, Dr. Geoffrey W. Gearner, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Previous work in our laboratory demonstrated that antibiotic resistance genes (ARG) can be detected in isolates of the bacterium *Escherichia coli* (an indicator of fecal pollution) collected from stream samples using the polymerase chain reaction (PCR). In this project, we wanted to know if the PCR could amplify ARG sequences from DNA extracted directly from stream water samples. Samples were collected from a variety of established collecting sites in the Triplett Creek Watershed, and total DNA was extracted using a commercial kit. Primers specific for the ARGs *ereA*, *sul-I*, *msrA/B*, and *tetO* were used in PCR. PCR products were assessed by agarose gel electrophoresis. ARGs were detected in some of the samples, indicating that the method does work. ARGs have the potential to be utilized as not only indicators of fecal contamination, but also in microbial source tracking efforts that can determine the host and point sources of fecal pollution in watersheds. This project was supported by a grant from Morehead State University's Center for Regional Engagement and by MSU's Undergraduate Research Fellowship Program.

P - 72

**The synthesis of schiff bases derived from sulfonamides with potential medicinal and biological significance**

Crager

**\*Slim H. Khouja, Dr. Mark T. Blankenbuehler, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Sulfonamides and their derivatives have been shown to possess a range of medicinal activities because they undergo metabolic modifications in biological organisms. They have been shown to be antibacterial, antimicrobial as well as anti-carbonic anhydrase, diuretic, hypoglycemic, and anti-tumor agents. Studies on Schiff bases derived from sulfonamides have indicated that their respective Metal (II) complexes have altered and sometimes more pronounced pharmacological activities. The synthesis of Schiff base ligands obtained by the condensation hydrochloride salt of sulfonamide phenylhydrazine with the carbonyl group of 2'-hydroxy-4-halo-chalcones which led to either hydrazones or pyrazolines is reported here.

P - 73

**Engineering multiple isoforms of a GFP-derived fluorescent protein**

Crager

**\*Marina D. Kirtland, \*Meredith L. Eckstein, Dr. David K. Peyton, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The green fluorescent protein (GFP) is a commonly used experimental tool that was originally derived from the jellyfish *Aequorea victoria*. The DNA sequence for the *GFP* gene can be engineered into many different organisms (*e.g.* bacteria, insects, mammals) and maintains its capacity for fluorescence. We are using classical cloning techniques and DNA synthesis to engineer a derivative of the *GFP* gene that can be easily modified into other isoforms that express fluorescence in wavelengths other than the original green.



**P - 74**      **Investigation of decreased temperature and crowding as stimuli for the production of male cladocerans**

**Crager**      **\*Jessica Lemley, \*Erin Waddell, Dr. David Smith, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The cladoceran *Ceriodaphnia dubia* undergoes cyclical parthenogenesis, in which females asexually reproduce female clones under favorable conditions. Environmental stressors such as seasonal temperature change and dense populations can stimulate the production of males and thus a switch to sexual reproduction. In an attempt to force production of males, three stressors were tested; decreased temperature, crowding of organisms, and a combination of temperature and crowding. Culturing and testing procedures followed standard USEPA methods. The tests were conducted for seven days in which three broods of neonates are typically produced. Neonates were observed for number per female and viewed under magnification to determine gender. This research was supported by MSU Undergraduate Research Fellowship.

**P - 75**      **The effect of rho-kinase inhibition on A7r5 smooth muscle cells**

**Crager**      **\*Sarah McClanahan, Dr. Michael E. Fultz, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Smooth muscle can maintain contraction at a small percentage of energy as compared to skeletal muscle. Previous evidence shows that differential remodeling of  $\alpha$ - and  $\beta$ -actin may explain the reduced energy expenditure by smooth muscle. We have shown that Rho-kinase inhibition may affect the structure and remodeling of the actin in A7r5 smooth muscle cells. Rho kinase inhibition appears to have a more drastic effect on  $\alpha$ -actin, compared to  $\beta$ -actin. This supports our theory of differential remodeling explaining how a smooth muscle cell can maintain contraction at low energy expenditure. We would like to thank the Undergraduate Research Fellowship Program and the Department of Biology and Chemistry Development/Endowment Program.

**P - 76**      **Diversity of arachnids caught in yellow and brown pan traps in eastern Kentucky**

**Crager**      **\*Zachary McKinley, Dr. Sean O'Keefe, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Arachnids (spiders, ticks, scorpions, mites, harvestmen, etc) are extremely diverse, and in some habitats can be extremely abundant. This diversity and abundance can be very useful as a tool to measure biodiversity. However, their diversity typically is poorly known. An inventory of Opiliones (harvestmen) and Araneae (spiders) is being conducted in the Daniel Boone National Forest. Although the typical method of inventorying spiders is hand-picking or pitfall traps, pan traps appear not to be used to survey spider diversity. Pan traps appear to be a very efficient way to collect cursorial spiders, and are easier to implement than pitfall traps (particularly in hard, heavily-rooted soil). The most common spider families collected were Lycosidae (wolf spiders), Dictynidae, Zoridae, and Pisuridae (nursery web spiders). These are predominantly active ground hunters; which would have had a greater chance of appearing in pan traps. Distinctly absent are the arboreal spiders (orb weavers, crab spiders, etc). Additional techniques to survey arboreal spiders are planned to be included in the 2013 sampling season.

P - 77

**Socs2 protein expression and cell type identification in *Xenopus laevis* after spinal cord injury.**

Crager

**\*Calie J. Morgan, Dr. Kurt M. Gibbs, Mentor, Department of Biology and Chemistry, College of Science and Technology**

*Xenopus laevis* tadpoles can regenerate their spinal cords after complete transection, whereas adult frogs cannot. In a previous study, we demonstrated that Socs2 mRNA expression increased in the tadpole hindbrain after spinal cord injury, but decreased in the adult hindbrain. The goal of our current study is to determine if Socs2 protein expression is increased in the hindbrain after injury and identify the cells in which it is expressed. These data will direct our efforts for future studies that will investigate the signaling mechanism of Socs2. This work was funded by National Institute of General Medicine Grant# 8P20GM103436-12.

P - 78

**Trends in cobalt leaching from coal combustion by-products from two stoker boilers pre- and post-modernization**

Crager

**\*Kathryn Renyer<sup>1</sup>, Drs. Zexia K. Barnes<sup>1</sup>, Nathan L. Coker<sup>1</sup>, Ann M. MacIntosh<sup>1</sup>, and Jennifer M.K. O'Keefe<sup>2</sup>, Mentors, <sup>1</sup>Department of Biology and Chemistry, College of Science and Technology, <sup>2</sup>Department of Earth and Space Science, College of Science and Technology**

The amount of cobalt that can leach from coal combustion by-products (CCBs) in an acid environment was quantified in order to help determine the risks of using and disposing of CCBs. The samples of the CCBs and feed coal were gathered from multiple points along the two post-modernized stoker boiler systems on the MSU campus. The extraction procedure was carried out in nitric acid and the cobalt was determined using inductively coupled plasma – atomic emission spectrometry. The data contribute to the literature due to a lack of information regarding the CCBs of stoker boilers. This work was funded by an USGS NCRDS grant.

P - 79

**Effectiveness of trapping method in relation to functional feeding group for beetles**

Crager

**\*Rebecca Roberts, Jackie Carder, Dr. Sean O'Keefe, Mentor, Department of Biology and Chemistry, College of Science and Technology**

Biodiversity assessments are an indispensable tool for conservation evaluation. Beetles in particular are an ideal group to use for such assessments as they are extremely diverse, very abundant, fill numerous ecological roles, and can be assessed quantitatively and qualitatively via many means. One useful way to categorize insects is via functional feeding groups. This method categorizes groups of insects according to mechanisms for acquiring food, as opposed to taxonomic grouping which seeks to provide a name for each individual insect and is thus more cumbersome. This approach can also provide some insight into food availability and quality of the study site. Examples of functional feeding groups include predators, herbivores, detritivores, scatophages, necrophages, and fungivores. Three rounds of sampling were conducted at three Wolf Penn Sites in the Daniel Boone National forest. Our pilot study lasted from 10 – 26 Aug 2011, and two additional sampling sessions were from 18 May – 14 June 2012 and 19 July – 14 Aug 2012. The three trapping methods employed include; yellow pan traps, pitfall traps, and Lindgren funnel traps. Yellow pan traps yielded the highest amount of diversity in various feeding groups. Pitfall traps and Lindgren funnel traps yielded more unique and specialized feeding groups. This research was supported in part by URF funds.

P - 80

**Field guide to the medically important insects and arachnids of Rowan County, Kentucky**

Crager

**\*Ashley Ruth, Dr. Sean O'Keefe, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The large abundance of insects and arachnids throughout the globe make them easy to encounter on a daily basis. They are of great importance to doctors and veterinarians due to the pathogens, toxins, and other parasites they are capable of transmitting. Arthropods of medical importance include mosquitoes, fleas, lice, bedbugs, biting flies, horse flies, myasis flies, bees and wasps, spiders, ticks, mites, etc. Of these, ticks and spiders are very common in Rowan County. Ticks are capable of transmitting Lyme Disease, Rocky Mountain Spotted Fever, as well as causing a variety of other problems. Spiders, a common arachnid, are medically important because of the toxins some species can transmit. The majority of our initial research focused on the arachnids, such as ticks and spiders, due to the availability of specimens. The American dog tick, *Dermacentor variabilis*, is the most commonly encountered tick. The Lone Star tick and the brown dog tick are also represented. The southern black widow spider, *Latrodectus mectans*, is fairly common, but the brown recluse spider, *Loxosceles reclusa*, appears to be fairly rare. This project was set up to document the medically important insects and arachnids in Rowan County, and eventually will include all of Eastern Kentucky.

P - 81

**Herbaceous plant species floristic inventory of Carter Caves State Resort Park, Carter County, KY**

Crager

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

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 assessment of the Morehead State University Herbarium for examples of herbaceous angiosperms from the park has so far produced 62 specimens of 53 different species. Specimens will be collected in the spring and fall semesters from the park to further the inventorying process. This project was supported by the Honors Program Research Fellowships of Morehead State University.

P - 82

**Analysis of nickel in a basic environment from combustible coal by-products using ICP-OES**

Crager

**\*Andrea Wilhoite, Drs. Zexia Barnes, Nathan Coker, Ann MacIntosh, Mentors, Department of Biology and Chemistry, College of Science and Technology**

Combustible coal by-products (CCBs) are non-combustible materials left over from burning coal. CCBs are often used in building materials and concrete. Leachability of heavy metals from these may depend on the pH concentrations of the environment, which could pose a serious health hazard if these metals are leaching off in high concentrations. In this research study, CCBs were added to a basic solution of a known concentration of potassium hydroxide. This new solution was then analyzed for nickel using inductively coupled plasma optical emission spectrometry, and the results showed that the nickel concentrations were below the detection limit of the ICP. The EPA does not have a regulation for nickel concentration in water, however many states have their own regulations of .1 mg/L. This suggests that nickel leached off of coal ash poses no serious threat to the public.

P - 83

**Generation of an isogenic *amgRS* mutant in the opportunistic pathogen *Pseudomonas aeruginosa***

Crager

**\*Alexandria S. Williams, Dr. Matthew L. Ellison, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The purpose of this work was to generate a non-polar isogenic deletion mutant of the two-component stress sensor AmgRS in the opportunistic human bacterial pathogen, *Pseudomonas aeruginosa*. A gene replacement suicide vector, pEX18Gm- $\Delta$ *amgRS*, containing deletion alleles of the genes *amgR* and *amgS* was obtained from Dr. Colin Manoil (University of Washington) and was introduced into wild-type strain PAO1. Merodiploid strains were selected for based on growth on Luria Bertani (LB) plates containing gentamicin. Wild-type alleles and the suicide vector were removed by growth on LB plates containing 6% sucrose. Proper insertion of the mutant allele into the new strain, PASW- $\Delta$ *amgRS*, was confirmed by PCR. This work was supported by KBRIN-INBRE (National Institutes of Health Grant 8P20GM103436-12). ASW is supported by the UG Research Fellows program.

P - 84

**Rifampin-resistant mutants demonstrate different errorprone DNA polymerases at work in *Acinetobacter* after DNA damage**

Crager

**\*Travis Witkowski, Alison Grice, Dr. Janelle Hare, Mentor, Department of Biology and Chemistry, College of Science and Technology**

The exposure of *Acinetobacter baumannii* and *Acinetobacter ursingii* to UV light induces the activity of error prone DNA polymerases that cause mutations in the *rpoB* gene and thus rifampin-resistant mutants. Cultures exposed to UV light to elicit DNA damage were plated onto rifampin-containing media to yield rifampin-resistant mutant colonies whose *rpoB* genes were then sequenced. The transition mutations observed in *A. baumannii* indicate DNA polymerase V (UmuD<sub>2</sub>-UmuC) is the most active error-prone polymerase after UV damage. For *A. ursingii*, however, the predominance of transversions suggests that DNA polymerase V does not seem to be responsible for the majority of the observed mutations. This work was supported by NIH grants 1R15GM085722-01 and 2P20RR016481-09.

P - 85

**Adventures in becoming an independent researcher: A case study in palynology**

Crager

**\*Kurstie R. Dutton, \*Sharon J. Brooke, Dr. Jen O'Keefe, Mentor, Department of Earth and Space Science, College of Science and Technology**

Palynology has a reputation for being difficult to learn, as it can take many months to be able to distinguish a palynomorph from “junk.” Being handed a tray of slides and introduced to a microscope and set of references in a dark, chilly room was a nerve-wracking start. There were times when I nearly quit. At last, I reached the ah-ha moment! By leaving my comfort zone, I learned how to learn and that being an independent learner is more productive than having someone walk you through it. My confidence has been boosted, and I know I can accomplish anything I set my mind to. This, perhaps, is the most important accomplishment of my URF and one that will help me succeed in future endeavors.

P - 86

**Examining microbial diversity in Paleocene and Eocene coals**

**Crager**

**\*Kurstie R. Dutton, \*Sharon J. Brooke, Dr. Jen O'Keefe, Mentor, Department of Earth and Space Science, College of Science and Technology**

The occurrence and role of fungal forms in peat formation is misunderstood and often overlooked. We know that fossil fungi are preserved in Cenozoic coals, but we don't know whether these represent saprophytic, mutualistic, or parasitic forms. We are exploring the fungal diversity in a Paleocene and an Eocene coal using palynology and organic petrography. Twelve samples from each of the coals will be examined to demonstrate that we can make identifications using our two metrics. This project is teaching skills that are directly transferable to studies of fungal decomposition of biomass and also of organic petrographic compositions of oil shales, and is preparing us for later study through a tiered-mentoring program for women in geology. This project is funded by KY NSF EPSCoR.

P - 87

**Chandra observations of the young galactic supernova remnant G1.9+0.3**

**Crager**

**\*Aleksander Kosakowski, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science and Technology**

With an estimated age of only 140 years, the Galactic supernova remnant (SNR) G1.9+0.3 is believed to be the youngest SNR in the Milky Way Galaxy. Spectroscopic analysis of X-ray observations of this SNR have revealed that the detected emission does not originate from a hot plasma (as expected for very young SNRs) but instead has a synchrotron origin. We have analyzed the archival observations made of G1.9+0.3 using the Chandra X-ray Observatory: the total exposure time of all of these observations is approximately 973 kiloseconds. We have applied standard non-thermal models (such as power laws and synchrotron models) to fit extracted spectra and search for spatial and spectral variations in the properties of the X-ray shell of emission.

P - 88

**Motivations and barriers to physical activity in college health and wellness majors**

**Crager**

**\*Miranda Holbrook, Drs. Jennifer Dearden, Gina Blunt Gonzalez, Mentors, Department of Health, Wellness, and Human Performance, College of Science and Technology**

Active lifestyle habits established during the college years can have a lifelong impact on adult health. Health and wellness (HWHP) majors are presumed to have a high level of motivation toward Physical Activity (PA) and structured exercise, however little is known about their reasons for being active. Therefore, it is important to understand the motivations and barriers to PA in this population. The purpose of this study is to understand exercise and PA factors within HWHP majors and across class rankings. Subjects included 100 undergraduate volunteers recruited from HWHP courses. Subjects completed the Exercise Motivations Inventory 2 and the International Physical Activity Questionnaire. Results revealed insight into motivations and the amount of PA in this population. This research was funded through the Undergraduate Fellowship Program.

**P - 89**      **Improving acceleration and speed of collegiate athletes in relation to mass specific force strength training**

**Crager**      ***\*Carl R. Pickering, \*Jaison K. Yoshimura, Drs. Mark Deaton; Manuel Probst, Dayna Seelig, Sean Williamson, USAW, Mentors, Department of Health, Wellness, and Human Performance, College of Science and Technology***

Acceleration and speed are extremely important athletic attributes and continue to be the focus of many coaches, athletes, and research for sport specific success (Weyand, et al., 1991, 2010, Coleman & Amonette, 2012, Lockie, et al., 2012). The purpose of this study is to evaluate the relationship between mass specific force strength training and the Hatch training protocol to improvements in acceleration and speed of collegiate football players. The participants were randomly divided into two groups: dead-lift and Hatch groups. The Hatch group followed a traditional training protocol (Hatch System protocol) and the dead-lift group followed the MSF training protocol for the duration of the study. Changes in mean acceleration and speed between the groups were analyzed using a repeated measures analysis of variance.

**P - 90**      **I worry because I'm afraid, I'm afraid because I worry; Generalized anxiety disorder**

**Crager**      ***\*Brittany Branham, \*Jonathan Lowe, \*Ramona Watkins, Cyndi Y. Gibbs, Mentor, Department of Imaging Sciences, College of Science and Technology***

Magnetic resonance imaging (MRI) has a multitude of uses, both in the clinical and research aspects of health science. Many research projects have been performed to attempt to discover the neural activity that a GAD patient experiences while presented with stressful stimuli. One form of research that can be used is functional magnetic resonance imaging (fMRI). Functional MRI measures the changes in oxygen levels in the blood of the affected individual when their brain is reacting to the stressful stimulus presented to them.

**P - 91**      **Magnetic resonance imaging in antisocial disorders**

**Crager**      ***\*Amy Coldiron, \*Ethan McCarty, Cyndi Y. Gibbs, Mentor, Department of Imaging Sciences, College of Science and Technology***

Approximately 3.6% of Americans has been diagnosed with Antisocial Personality Disorder. Symptoms usually occur around the age of 15 but the individuals are not normally diagnosed until the age of 20. ASPD can be found in both men and women and is more prevalent in males being diagnosed.

Over the years physicians have diagnosed patients with ASPD by matching their personality traits to criteria listed in DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders) or from the use of electroencephalograms (EEG). They are now realizing that MRI and fMRI can play a large role in diagnosing these individuals.

**P - 92**      **Fighting the war within: Utilization of magnetic resonance imaging in post-traumatic stress disorders**

**Crager**      ***\*Nelson Coombs, \*Melissa Murray, \*Lauren Flannery, Cyndi Y. Gibbs, Mentor, Department of Imaging Sciences, College of Science and Technology***

Research with the use of MRI has the potential to discover that people are not just psychologically susceptible to PTSD, but also physically. Smaller hippocampal brain volumes are noticed among many of the affected. Further studies are needed to indicate whether memory loss in PTSD patients is correlated with the smaller hippocampus volumes seen among the affected.

P - 93

**Living in a landfill: Magnetic resonance imaging in patients with hoarding disorders**

**Crager**

**\*Krista McClain, \*Benjamin Bevins, \*Woon Joo Hobgood, Cyndi Y. Gibbs, Mentor, Department of Imaging Sciences, College of Science and Technology**

Hoarding is a serious problem that has become prevalent in the U.S. over the last few years. A house full of belongings to the extent that one can't live, walk, or even use spaces is often hard to picture for most, however many people deal with it every day. Physicians and researchers are trying to have hoarding recognized as its own separate disorder because of the obvious differences between OCD and hoarding. Hopefully, with the extended research and the growing awareness of hoarding, those living with this disorder can live a more productive life, living outside the landfill that they know as home.

P - 94

**Liar, liar, scans on fire**

**Crager**

**\*Breanna Stone, \*Wade Prater, Cyndi Y. Gibbs, Mentor, Department of Imaging Sciences, College of Science and Technology**

Although all forms of lie detecting are not usually allowed as evidence in the court system, research has begun in recent years regarding the permission of fMRI lie detection in criminal investigations. Certain areas of the brain are associated with effort and conflict, each area individually unique from person to person. Functional MRI, in a sense, highlights these areas when an individual tells a lie by tracking the blood flow of activated areas. For this reason, many researchers believe fMRI to be more accurate than the polygraph test.

P - 95

**Effects of calculator use before vs. after instruction on quadratics computations**

**Crager**

**\*Emily Adams, Drs. Christie Perry, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Determining when and how much calculator usage should be allowed is a concerning issue for teachers in K12 mathematics classrooms. The goal of this study is to figure out if calculator instruction before vs. after pencil and paper instruction has any effect on learning. In two classrooms the teacher will teach the topic with pencil and paper first, and then switch to instruction using the calculator. In two other classrooms she will teach the topic on the calculator first, and then switch to the pencil and paper procedure. In the end, the students in these classrooms will take the same assessment and scores will be collected to analyze results.

P - 96

**Development of a wide-field CCD camera for photometry**

**Crager**

**\*Scott Blankenship, Dr. Jennifer J. Birriel, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Variable stars periodically change in their observed brightness over time, either because they exist in special stage of stellar evolution or are members of an eclipsing binary system. Monitoring of variable stars allows us to determine a variety of stellar parameters of crucial importance to our understanding of stellar evolution. Most telescopic CCD observations focus on variable stars fainter than 7<sup>th</sup> magnitude simply because stars bright than quickly saturate the CCD camera. Using an older CCD camera coupled to a camera lens, we develop a low cost, portable system capable of photometric and monitoring of bright, naked eye variable stars. The system is also useful for solar and lunar studies when the appropriate filters are employed. We present our preliminary results, examining the solar limb darkening effect and lunar reflectance.

**P - 97**      **Utilizing web mining to personalize mobile web pages**

**Crager**      **\*Joseph Blanton, Dr. Sherif Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Using mobile phones to access the internet is becoming increasingly popular, but the design of web pages has yet to truly cater to this developing audience. By utilizing web mining techniques and adapting the Apriori algorithm, this research aims to build an application from the ground up to analyze user browsing patterns, and directly translate sequences of page views into a noticeably personal browsing experience.

**P - 98**      **Intrusion detection in wireless mobile networks using data mining techniques**

**Crager**      **\*Joseph Blanton, Dr. Sherif Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

As wireless mobile networks become more prevalent, the need for new and stronger methods of security grows. Due to their lack of physical infrastructure, these networks are much easier to infiltrate, and many older methods of security are no longer satisfactory. The goal of this research is to design and implement new intrusion detection and response techniques for mobile users. This will be accomplished by the design and implementation of new algorithms that aim to improve upon the speed and memory efficiency of current intrusion detection methods used in mobile networks. These techniques will be based on ubiquitous data stream mining and classification techniques. The data mining tool WEKA will also be used to classify different types of data and to compare different data mining techniques. This research was supported by MSU Undergraduate Research Fellowship.

**P - 99**      **Forces generated by specialized pitching mechanics in baseball**

**Crager**      **\*Morgan Cirbo, Dr. Ignacio Birriel, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

The pitcher in baseball is studied on a daily basis using a simple radar gun to high tech, high speed camera with motion capturing technology. However, the type of pitching called submarine pitching is an area of pitching that has not been studied before. This type of pitching is where the pitcher bends his back as he throws which causes him to release the ball near or at the ground. This type of pitching uses rotational motion to propel the baseball towards the plate instead of the linear motion a standard pitcher uses. This study will quantify the different throwing motions a pitcher uses to throw the baseball using the wireless dynamic sensors. The dynamic wireless sensors will measure the acceleration at certain points on the body.

**P - 100**      **The spring number of a graph**

**Crager**      **\*Carolyn Crump, \*Mark Sticklen, Dr R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

A graph can be thought of as a set of entities and relationships among the entities. A *dominating set* is a set of entities so that every entity in the graph is either in the set or shares the relationship with a member of the set. An *identifying code* is a dominating set in which each entity shares the relationship with a unique subset of the code. In general, identifying codes are larger than dominating sets, but both can be used to determine optimal placement of fire alarms in buildings. This research considers situations in which the same number of alarms may be used for both purposes. This research was supported by the MSU Undergraduate Research Fellowship Program.



**P - 101**      **Identifying codes on chessboards**

**Crager**      **\*William Parker, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

A famous problem asks for the minimum number of queens that may be placed on a chessboard so that all the squares are attacked at least once. Much research has taken place on this problem, which has a variety of real-life applications, and many seemingly simple questions remain unanswered by leading experts. This project introduces an even more difficult variant of the original problem in which each square must be attacked by a unique queens. T

**P - 102**      **Using the RSpec Explorer Spectrometer for more than just classroom demos**

**Crager**      **\*Trevor Satterfield, Drs. Jennifer Birriel, Ignacio Birriel, Mentors, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Spectroscopy is an extremely useful tool to determine the chemical properties of materials both on earth and in space. The RSpec Explorer Spectrometer is the first truly affordable spectrometer that is moderate resolution and has software that allows for quantitative analysis of spectra. This device was originally designed as a demonstration device for classroom use. We explore the use of this device as a quantitative tool for advanced physics laboratory experiments and for undergraduate research projects. We present several potential laboratory explorations and some potential uses of the device for astronomical research.

**P - 103**      **Forecasting hurricane intensity using time series forecasts and multiple regression analysis**

**Crager**      **\*Samantha M. Toepfer, Dr. Lloyd R. Jaisingh Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

The objectives of this research are to utilize specific hurricane characteristics such as current and previous latitude and longitude positions, maximum wind speed, movement in mph, and pressure to create an accurate method of forecasting a hurricane's future position as well as its intensity. These characteristics were first forecasted using Time Series Analysis which produced 6-hour forecasts of each of the dependent variables. The forecasted values of latitude, longitude, pressure and movement were then used to predict the hurricane's intensity with a multiple regression model. These predictions were compared to the actual intensity, wind speed, as well as the predictions made by using the actual values of latitude, longitude, movement and pressure as dependent variables in the multiple regression model.

**P - 104**      **Analysis of a catcher's mechanics in baseball**

**Crager**      **\*Drew Williams, Dr. Ignacio Birriel, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

A catcher in baseball is actively involved, defensively, in almost every single play during a single nine inning game. The catcher has specific duties; those duties include directing infield players around the field, calling pitches and plays, and most importantly are able to throw out a potential base runner to 2<sup>nd</sup> base in 2.0 seconds or less. Though the catcher plays a very important role in baseball there is very little quantitative data describing the throwing motion of the catcher when compared to the data that has been obtained from the pitching position. This study will quantify the throwing motion of the catcher as he makes a throw to second base using a wireless dynamic sensor system that will measure acceleration at various points on the body of the catcher. In addition to quantifying the throwing motion, data will also be compared to the throwing motion of a pitcher.

P - 105

**Recommendations for non-pharmacological techniques to reduce pain in the medical-surgical setting**

Crager

***\*Haidar Alalawi, \*Samantha Bush, \*Tammy Heflin, \*McKenzie Hicks, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

Non-pharmacological pain management is the management of pain via techniques alternative to the use of pharmacological pain medications. These include cognitive-behavioral strategies, such as distraction, guided imagery, education, and prayer, as well as physical measures such as heat, massage, bracing, and assistive devices. The goal of non-pharmacological pain management is to first reduce the pain level, and then to restore patients to the functional baseline of well-being specific to that patient. The purpose of this protocol is to recommend effective, non-pharmacological pain management techniques that can be incorporated into care planning for patients hospitalized in a medical-surgical facility.

P - 106

**Maintaining patient confidentiality and dignity through compliance with HIPAA-related policies and procedures**

Crager

***\*Jayme Bauer, \*Shelby Branam, \*Kayla Huff, \*Natasha Mullins, \*Jaysa Stark, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

Privacy has become an important issue in today's health care environment. Our goal is to provide a mechanism to promote compliance with HIPAA guidelines, while also promoting effective listening of patient concerns and implementation of patient-centered care. Each patient has a unique view of how their privacy can and should be protected. All nurses are taught privacy principles, but many nurses do not adhere to the HIPAA standards. This has been demonstrated through both literature review and observation in clinical sites. We propose recommendations to an in-patient medical-surgical unit to increase compliance with the maintenance of patient confidentiality and dignity.

P - 107

**Cultural communication barriers and combatting their effects on patient outcomes in the clinical setting**

Crager

***\*Shelby Bond, \*Mercedes Fletcher, \*Alicia Harless, \*Kaitlynn Pack, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

It is projected that the population of minority groups in the U.S will increase significantly in the next decade. We sought to determine the factors contributing to communication barriers on one multi-focus medical-surgical unit. Our team conducted a data-based search to gather information regarding the impact of communication barriers among minority groups in the health care setting, as well as interventions commonly used to overcome the barriers. Upon integrating the literature, we identified common factors that led to communication barriers: language, health beliefs, discrimination, and time constraints. The repercussions of these factors result in negative patient outcomes. Recommended interventions to lessen these impacts on the clinical unit of focus include increased utilization of interpreters and diverse educational tools.

**P - 108**

**A gerontological nursing clinical reflection narrative project**

**Crager**

**\*Shelby Branam, Michelle McClave, Mentor, Department of Nursing, College of Science and Technology**

Clinical reflection has been identified as an especially helpful mechanism to promote the development of critical thinking in nursing students. This self-assessment narrative illustrates the progression of clinical reflection related to gerontological nursing beginning with entrance into the nursing program, through experiences as a Certified Nursing Assistant in a long-term care setting, and through the junior year in nursing school. This is the first phase of a two-step project designed to ultimately develop a clinical reflection portfolio for continued use by students in the baccalaureate nursing program.

**P - 109**

**Nursing staff education recommended for reducing skin breakdown prevalence and severity in the clinical setting**

**Crager**

**\*Ashley Cook, \*Brittany Daugherty, \*Stephanie Gaddie, \*Garrett Foss, \*Lauren Sewell, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology**

The prevalence and poor outcomes associated with skin breakdown in the clinical setting can, at times, be readily prevented. The purpose of this project is to recommend measures to reduce skin breakdown and further deterioration of pressure ulcers occurring on a neuro-progressive in-patient unit. Based on our findings from a review of literature, we determined that the skin care protocol currently adopted on the unit is evidence-based, best practice. Recommendations, therefore, will focus on education of nurses and encouragement of compliance regarding the protocol.

**P - 110**

**Development of an evidence-based protocol to prevent *Clostridium difficile* associated disease**

**Crager**

**\*Molly Hicks, \*Rhonda Hughes, \*Geri Humphreys, \*Alix Whitt, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology**

*Clostridium difficile* associated disease (CDAD) is a hospital-acquired infection that is common among patients who are immunosuppressed, on proton pump inhibitors, and taking antibiotics. *Clostridium difficile* spores can live on environmental surfaces and be transferred on the hands of health care workers. CDAD can lead to dehydration, extended hospitalization, and increased medical costs. The purpose of this project is to develop an evidence-based protocol to decrease *Clostridium difficile* infections on an in-patient transplant unit and increase compliance to standard precautions by health care providers. Implementation of the following measures is recommended to prevent CDAD: performance of hand hygiene with soap and water, institution of contact precautions, and cleaning of the surfaces and equipment in patient rooms with a disinfectant that eliminates the *Clostridium difficile* spores.

P - 111

**The development of an electronic health record evidence-based protocol**

Crager

***\*Kelsey Hill, \*Molly Kramer, \*Cristal Neal, \*Megan Rice, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

The federal government mandates that all healthcare facilities receiving reimbursement from Medicare or Medicaid must have an electronic health records system in place for meaningful use by 2015. Implementation of such a revolutionary documentation system brings with it concerns of effectiveness, efficiency, time management, and quality of patient care. Documentation is the foundation on which we stand as medical professionals. The electronic health record system allows tracking of patient progress, communication among the interdisciplinary team, and most importantly, it provides a means by which we can ensure that patients are receiving a high quality of care. The purpose of this project is to develop an evidence-based practice protocol to potentiate the benefits of electronic health record systems on a medical/surgical unit.

P - 112

**Recommendations to prevent medical equipment cross-contamination of medical-surgical inpatients**

Crager

***\*Destiny Key, \*Irene Myers, \*Alexis Pugh, \*Taylor Wilkin, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

Increased attention has been focused on the potential of medical equipment acting as a vector for cross-contamination. *Staphylococcus aureus* has been one of the most common organisms identified in such contamination. Despite the institution of standard decontamination protocols in healthcare settings, it has been determined that poor compliance is a factor. Disposable equipment, along with the use of other measures, can decrease the likelihood of equipment-related cross-contamination. However, when compared to reusable medical devices, disposable equipment is less cost efficient. Through a review of literature, we examined the effectiveness of several cleaning techniques used to prevent cross-contamination, such as the use of alcohol disinfectants and other means of decontamination. In conclusion of the review, recommendations were made specific to one medical-surgical in-patient hospital unit.

P - 113

**Exploration of patient identification solutions to reduce medication errors**

Crager

***\*Malissa Martinez, \*Jackie Richmond, \*Arian Synder, \*Brandon Tackett, \*Jillian White, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology***

Each year there are over one million medication administration errors reported in the United States alone. The focus of this project is to examine preventable medication errors that commonly occur as a result of ineffective patient identification. In order to explore this topic, a review of literature was conducted. Analysis of the literature resulted in an emphasis on the importance of reducing interruptions during the medication administration process, as well as other suggestions. These recommendations are provided in hopes to help reduce issues currently occurring during medication administration on one medical-surgical observation unit.

P - 114

**Education regarding proper hand hygiene to decrease hospital-associated infections**

**Crager**

**\*Alex Pacitto, \*Melissa Sanders, \*Sadie Shepherd, \*Danielle Skaggs, \*Morgan Thornsberry, Michelle McClave, Mentor, Introduction to Nursing Research, Department of Nursing, College of Science and Technology**

The goal of this project was to discuss the prevalence of hospital acquired infections and how they may be decreased on a neuro-progressive inpatient unit. Studies were identified for review from a nursing database search of infection control cases in the health care setting. Each study was reviewed in order to identify sources of bacteria that are related to hospital-associated infections. These studies were analyzed to identify vectors of bacteria that can be prevented in order to decrease the amount of hospital-associated infections. Recommendations are provided for health care workers and patients to be properly educated on both common contamination locations and hand hygiene procedures in order to help decrease the incidence of such infections.

P - 115

**Parent's approach to emotions and their children's emotional and behavioral competence**

**Crager**

**\*Paige N. Doyle, Fredrick Chin, Stephanie Burns, Oriana Reed, Brittany Weeks, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science and Technology**

Emotion skills are an integral aspect of children's adjustment and parents have considerable influence on them. The current study explores the connections between parent's approach to emotion and their children's functioning. Nineteen families participated in the study when the children were twelve years old. The Child Behavior Checklist (Achenbach & Rescorla, 2001), a parent questionnaire, was used to determine children's internalizing (i.e., sad/anxious) and externalizing (i.e., oppositional) symptoms. An interview (based on Gottman, Katz, Fainsilber & Hooven, 1997) was used to assess parent's approach to negative emotions and a complementary child interview was administered. Preliminary data suggests that parents who were accepting of negative affect had children with fewer symptoms and greater emotion skills. This research was supported by MSU RCPC and KY NSF grants.

P - 116

**Takin' care of business: Predicting psychological resolution after betrayal**

**Crager**

**\*Casey Fitzpatrick, \*Nolan Williams, Elizabeth Knox, Dr. Laurie Couch, Mentor, Department of Psychology, College of Science and Technology**

Elliot, Watson, Goldman, and Greenberg (2004) demonstrated that achieving psychological resolution after stressful/traumatic events may help individuals. Coping strategies may afford the opportunity to "move on," thus our study investigated links between them and long-term psychological resolution after stressful relational experiences (i.e., betrayals). Using self-report methods, 201 college students were asked to describe an experience with betrayal, the various coping strategies they used to deal with it (i.e., via the COPE Inventory), and the degree of resolution they felt after the coping (i.e., via the Unfinished Business Resolution Scale). Results of a stepwise multiple regression analysis suggested that using behavioral disengagement, turning to religion, and venting to manage betrayal predicted later "unfinished business," whereas having used acceptance and emotional support strategies was associated with closure.

P - 117

### **Factors influencing visual search in complex driving environments**

**Crager**

**\*Alyssa Franklin, \*Kristen Stacy, Oriana Reed, Chelsea Whitt, Dr. Greg Corso, Mentor, Department of Psychology, College of Science and Technology**

Our study is ongoing and will help to determine the effectiveness of different channelizing devices (barrels, concrete walls, etc) in complex driving environments. The study requires participants to view slides of construction zones on a multilane road to determine if an exit ramp is open or closed. If the ramp is open, the participant identifies its location. The construction zone is marked with different channelizing devices. The independent variables (type of channelizing device, distance from the exit ramp, and the road geometry) are systematically manipulated. The dependent variables (response speed and error rate) will help to determine the most effective channelizing device and may lead to engineering design changes that reduce the potential for driver error.

This study is funded by a grant from the National Center for Transportation System Productivity and Management Research to Georgia Institute of Technology, the University of Central Florida, and Morehead State University.

P - 118

### **The motivational implications of gender stereotypes**

**Crager**

**\*Justin M. Hargett, Dr. David Butz, Mentor, Department of Psychology, College of Science and Technology**

Although much work has demonstrated negative effects of stereotypes, awareness of stereotypes about one's group may encourage positive responses, including a desire to overcome stereotypes. The present investigation explored the degree and implications of motivation to overcome gender stereotypes. We hypothesized that females would exhibit stronger motivation to overcome gender stereotypes than males and that stronger motivation would be associated with gender counter-stereotypical pursuits, such as interest in pursuing stereotypically masculine careers. Results indicated a marginally significant trend such that females reported greater internal motivation to overcome gender stereotypes than males. Additionally, females higher in internal motivation to overcome gender stereotypes reported greater interest in masculine over feminine careers than their low internal motivation counterparts. This research was supported by a MSU Undergraduate Research Fellowship.

P - 119

### **Regional brain drawing contest: 2013 regional brain awareness program**

**Crager**

**\*Katy R. Hauris, Taylor Patrick, Leah Smith, Maggie Sea, Megan Lindsey, Shauna Boyd, Ryan Smith, Gianni Maione, Hunter Cook, Kendra Murray, Oriana Reed, James Logan Messer, Skye Wingate, Sherilee Stevens, Dr. Ilsun M. White, Mentor, Department of Psychology, College of Science and Technology**

The Regional Brain Drawing Contest is a part of the Brain Awareness Program (BAP). The scope is to enhance brain awareness among students (K-8<sup>th</sup>) in Eastern Kentucky. Drawing themes were specific to grade. K-1<sup>st</sup> graders explained how their brain helps them; 2<sup>nd</sup>-4<sup>th</sup> grades focused on how their brain is special; 5<sup>th</sup>-6<sup>th</sup> grades focused on brain health; 7<sup>th</sup>-8<sup>th</sup> grades used similes and compared the brain to an object. This year, we received nearly 1000 entries from 4 counties. Judging was based on originality, scientific accuracy, and overall design. Preliminary judging was done by 12 student judges. Award judging was done by 8 faculty and a community representative. The award ceremony was held at Button Auditorium.

P - 120

**Visits to high schools and senior homes in eastern Kentucky: 2013 regional brain awareness program**

**Crager**

**\*Katy R. Hauris, Gianni Maione, Maggie Sea, Dr. Ilsun M. White, Mentor, Department of Psychology, College of Science and Technology**

As a part of the Brain Awareness Program (BAP), we visited high schools in several counties as well as senior homes in Eastern Kentucky. The aim of the program is to enhance public awareness of brain research and provide education about the effects of drug addiction on the brain and behavior. High school visits included lectures on brain functioning and the effects of alcohol and addictive drugs on the brain as well as ongoing drug research at MSU. In addition, educational materials on brain health and brain research were distributed at high schools and senior homes. Sponsored by the Society for Neuroscience, Dana Foundation, and the National Institute of Health.

P - 121

**Am I good or bad? Parental sensitivity is associated with children's emotion competence**

**Crager**

**\*Shelby D. House, Kayla M. Sizemore, Katelyn M. Fugate, Dr. Shari L. Kidwell, Mentor, Department of Psychology, College of Science and Technology**

Sensitive caregiving determines children's emotion skills. We explore how parents' sensitivity is associated with their children's emotional competence. Thirty-five families participated when children were 5.5 years old and 19 families at age 11. Sensitivity was measured via ratings of the Reminiscing Task (Laible & Thompson 2000), having dyads discuss times when the child was "good" and "bad". Data was coded using the Emotional Availability Scales, 3<sup>rd</sup> edition (Biringen, Robinson, & Emde, 2000). Child emotion competence was measured through the Abner Emotions Interview (Kidwell, 2002), where children discuss experiences of six emotions. Ratings were completed for emotional competence. Findings suggest that parental sensitivity predicts children's scoring on the Abner Interview. Sensitivity predicted children's understanding of emotions. Thanks to NSF's EPCoR program for funding this project.

P - 122

**Media type and comprehension questions in online critical thinking lessons**

**Crager**

**\*Natalie Justice, Dr. Wesley White, Mentor, Department of Psychology, College of Science and Technology**

The purpose was to improve online lessons that taught a critical thinking framework. Participants were Morehead State undergraduates. In study 1, students completed versions of a lesson that had, as illustrative material, video transcripts or videos. The version with videos was rated as more interesting, but quiz performance on the two versions was equivalent. Interest value of instructional material could be increased while maintaining performance. In study 2, students completed versions of a lesson that did not include comprehension quizzes or that did include them. Including comprehension quizzes did not improve performance on a pre-announced test that was over the lesson and that was given immediately after lesson completion. Reasons for the lack of effect will be discussed. (Supported by an UG Fellowship)

P - 123

**Child and parent attachment and parental reflective functioning using the DMM model**

**Crager**

**\*Ashley Morris, \*Leah Katz, Alice Nauman, Kayla M. Sizemore, Medina Jackson, Dandan Li, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science and Technology**

Parental reflective functioning (RF) is defined as understanding of mental states in themselves and their child. It is integral to sensitive parenting. This study explores RF and its association with children's preschool and school-age attachment. Twenty-one families participated, completing the Strange Situation procedure (Ainsworth, Blehar, Water & Waltz, 1978) at age 4 and the School Age Assessment of Attachment (Crittenden, 2006) at age 11. Attachment was classified using DMM coding (Crittenden, 2004; 2006). RF was measured from the DMM-Adult Attachment Interview (Crittenden & Landini, 2011) and was coded using a well-validated procedure (Fonagy, 1998). The aforementioned relationships are examined in a qualitative analysis of a small group of families at varied levels of risk. This research was supported by MSU RCPC and KY NSF grants.

P - 124

**Does exposure to morphine in adolescence influence alcohol drinking in adulthood?**

**Crager**

**\*Taylor Patrick; Dr. Ilun M. White, Mentor, Department of Psychology, College of Science and Technology**

Adolescence is a critical period for brain development. Previously, we have shown that exposure to addictive drugs during adolescence lead to enduring learning deficit in adulthood. The present study examined whether repeated morphine injection would lead to alcohol drinking in adulthood. Wistar rats were treated with morphine (10mg/kg) for 5 days on postnatal days, PD50-54, then were tested on alcohol consumption after PD90. We found that saline-treated rats consumed more alcohol, compared to morphine-treated rats. Our data suggest that early exposure to morphine does not predict alcohol drinking in adulthood, and that different brain regions may mediate differential behavioral outcomes. Supported by NIH grant, R15DA015351.

P - 125

**Motivational content in online critical thinking lessons**

**Crager**

**\*Makinzee Tatman, Dr. Wesley White, Mentor, Department of Psychology, College of Science and Technology**

The purpose was to improve online lessons that taught a critical thinking framework. Participants were Morehead State undergraduates. In study 1, different groups completed an introductory lesson that did not contain motivational content or that did. Students rated the motivational version higher in terms of clarity, accuracy, and relevancy, and much higher in terms of interest value and motivational value. In study 2, different groups saw the different introductory versions and then completed additional lessons that included activities and quizzes. Viewing the motivational version of the introductory lesson did not improve quiz performance on later lessons or increase the amount of time spent on them. The motivational impact of an online lesson may be brief. (Supported by a UG Fellowship)



P - 126

**National symbols and outgroup prejudice**

**Crager**

***\*Martina Wagoner, Dr. David Butz, Mentor, Department of Psychology, College of Science and Technology***

Although national symbols are pervasively displayed and serve as powerful reminders of one's national group membership, relatively little work has examined the implications of exposure to such symbols. Drawing from work linking increased nationalistic identification to prejudicial responses, we examine the implications of exposure to national symbols for prejudice toward outgroups. Participants were randomly assigned to a condition in which either a U.S. flag, a U.S. flag in a nationalistic context, or a neutral image was displayed on a mouse pad in a lab room. Participants then reported their national identification and attitudes toward a range of outgroups. Analyses will focus on differences in national identification and prejudice as a function of symbol exposure condition. This research was supported by a MSU Undergraduate Research Fellowship.

P - 127

**Getting over betrayal: Links between post-betrayal reactions and coping for men and women**

**Crager**

***\*Nolan Williams, Casey T. Fitzpatrick, Elizabeth Knox, Dr. Laurie L. Couch, Mentor, Department of Psychology, College of Science and Technology***

This study sought to investigate the relationship between coping styles used after romantic betrayal and mental/physical symptoms that were occurring at the time. Surveys of post-betrayal symptoms were completed by 123 community volunteers, who also indicated the coping strategies they used to manage the event at the time. Interestingly, the results suggested several coping strategies (e.g., coping through emotional/instrumental support seeking, mental/behavioral disengagement, venting, denial, alcohol/drug use, and suppression of competing activities) that were negatively correlated with post-betrayal health outcomes for men, such as depression, anxiety, trauma reactions, and stress-related physical symptoms; however, few coping strategies were related to health indicators for women. Future research is advised to help us better understand this sex-related difference. \*This research was supported by MSU Undergraduate Research Fellowship.

P - 128

**Am I good or bad? Associations of parental sensitivity with children's emotion competence across 6 years**

**Crager**

***\*Shelby House, Oriana Reed, Brittany Weeks, Tina Ward, Mackinzee Tatman, Natalie Justice, Kayla Sizemore, Katelyn Fugate, Dr. Sheri Kidwell, Mentor, Department of Psychology, College of Science and Technology***

This study sought to investigate the relationship between coping styles used after romantic betrayal and mental/physical symptoms that were occurring at the time. Surveys of post-betrayal symptoms were completed by 123 community volunteers, who also indicated the coping strategies they used to manage the event at the time. Interestingly, the results suggested several coping strategies (e.g., coping through emotional/instrumental support seeking, mental/behavioral disengagement, venting, denial, alcohol/drug use, and suppression of competing activities) that were negatively correlated with post-betrayal health outcomes for men, such as depression, anxiety, trauma reactions, and stress-related physical symptoms; however, few coping strategies were related to health indicators for women. Future research is advised to help us better understand this sex-related difference. \*This research was supported by MSU Undergraduate Research Fellowship.

## 2012-2013

# Recipients of Undergraduate Research Fellowships

Morehead State University supports the initiative of students who engage in research, scholarship, performance activities and creative works. Listed below are the 2012-2013 awardees and their mentors.

### COLLEGE OF BUSINESS

| <b>Student URF</b>    | <b>Class</b> | <b>Department</b> | <b>Mentor (s)</b> |
|-----------------------|--------------|-------------------|-------------------|
| Brandon Hylton        | Jr.          | AEF               | Donna Kizzier     |
| Yen Tran*             | So.          | AEF               | Ali Ahmadi        |
| Caitlin Bailey*       | Jr.          | AEF               | Johnathan Nelson  |
| Taylor Dyer           | So.          | AEF               | Ali Ahmadi        |
| Autumn Baker          | Sr.          | GOVT/IRAPP        | Michael Hail      |
| Johnathon Dye*        | So.          | GOVT/IRAPP        | Jonathan Pidluzny |
| Bradley Fyffe*        | Jr.          | GOVT/IRAPP        | William Green     |
| James Galbreath*      | Sr.          | GOVT/IRAPP        | Jonathan Pidluzny |
| Alicia Harless*       | Jr.          | GOVT/IRAPP        | Timothy Hare      |
| Rebecca Hopkins*      | Jr.          | GOVT/IRAPP        | William Green     |
| Cody Murphy*          | Jr.          | GOVT/IRAPP        | Murray Bessette   |
| Laura Pfalzer*        | Jr.          | GOVT/IRAPP        | Murray Bessette   |
| Ashley Ruggiero*      | Jr.          | GOVT/IRAPP        | Michael Hail      |
| Leonidas Clay Skaggs* | So.          | GOVT/IRAPP        | Jonathan Pidluzny |
| Traci Bard*           | Jr.          | MNG/MKT           | Janet Ratliff     |
| Nicholas Mason*       | Jr.          | MNG/MKT           | Steve Chen        |

### COLLEGE OF EDUCATION

| <b>Student URF</b> | <b>Class</b> | <b>Department</b>     | <b>Mentor (s)</b> |
|--------------------|--------------|-----------------------|-------------------|
| Katarina Chalk*    | Jr.          | ECES                  | Kim Nettleton     |
| Amy Clausen*       | Jr.          | ECES                  | Sarah Hawkins     |
| Laura Gieman       | So.          | ECES                  | Martha Decker     |
| Caroline Heston*   | Jr.          | ECES                  | Mee-Ryoung Shon   |
| Kelsey Koontz*     | Sr.          | ECES                  | Edna Schack       |
| Brooke Kendall*    | Sr.          | KCCRI                 | Daryl Privott     |
| Rachel Bender*     | Jr.          | MGSE                  | Kimberlee Sharp   |
| Emily Bodenlos*    | Jr.          | MGSE                  | Lexia Lennex      |
| Jaime Chapman*     | So.          | MGSE                  | Jody Fernandez    |
| Megan Brewington*  | Sr.          | 21 <sup>st</sup> CENT | Krista Barton     |
| Allison Johnston*  | Jr.          | 21 <sup>st</sup> CENT | Rebecca Roach     |
| Terri Rose         | Sr.          | 21 <sup>st</sup> CENT | Rebecca Roach     |

### CAUDILL COLLEGE OF HUMANITIES

| <b>Student URF</b> | <b>Class</b> | <b>Department</b> | <b>Mentor (s)</b> |
|--------------------|--------------|-------------------|-------------------|
| Sabrina Goble*     | Sr.          | A&D               | Seth Green        |
| Megan Harper*      | Fr.          | A&D               | Joy Gritton       |
| Julie Haymond*     | Sr.          | A&D               | Joy Gritton       |
| Tara Madden*       | So.          | A&D               | Joy Gritton       |
| Annie Peterson*    | Jr.          | A&D               | Jennifer Reis     |
| Carly Saunders*    | So.          | A&D               | Jennifer Reis     |
| Kara Staggs*       | Jr.          | A&D               | Joy Gritton       |
| Sarah Becklheimer  | Sr.          | CMLS              | John Modaff       |

|                   |     |       |                                       |
|-------------------|-----|-------|---------------------------------------|
| John Breeding*    | Sr. | CMLS  | Steve Middleton                       |
| Haley Dyer*       | So. | CMLS  | Ann Andaloro                          |
| Pamela Hammond*   | So. | CMLS  | Jeffrey Hill                          |
| Hannah Webb*      | So. | CMLS  | Randy Manis                           |
| Ben Caldwell*     | Jr. | ENG   | Glen Colburn                          |
| Alexandra Reinke* | Jr. | ENG   | Deanna Mascle                         |
| Whitney Jones*    | Jr. | ENG   | Deanna Mascle                         |
| Spencer Sullivan* | Fr. | ENG   | Layne Neeper                          |
| Julia Huffman     | Jr. | ENG   | Deanna Mascle                         |
| Megan Marie Ison* | So. | ENG   | Kathryn Mincey                        |
| Benjamin Whisman* | Jr. | ENG   | Thomas Williams                       |
| James Mills*      | Sr. | ENG   | Carrie Coaplen                        |
| Nikki Cagle*      | Sr. | HPRLS | Kristina DuRocher                     |
| Katherine Messer* | Jr. | HPRLS | John Ernst                            |
| Rebecca Parker*   | Sr. | HPRLS | Kristina DuRocher                     |
| Josh Goble*       | Jr. | HPRLS | Wendell O'Brien                       |
| Faith Brown       | So. | IIS   | Brian Boisvert                        |
| Kayla Burton*     | Sr. | IIS   | Philip Krummrich                      |
| Oana Nae*         | So. | IIS   | Jason Holcomb                         |
| Lanora Johnson*   | So. | IIS   | James Masterson                       |
| Cassandra Murphy  | Sr. | IIS   | James Masterson                       |
| Trevor Brown      | Jr. | MTD   | Lori Baruth                           |
| Adam Dixon*       | Jr. | MTD   | William Mann                          |
| Maria Felice*     | So. | MTD   | Lori Baruth                           |
| Paula Jo Roberts* | So. | MTD   | Roma Prindle                          |
| Johanna Sarda     | Fr. | MTD   | Roosevelt Escalante                   |
| Ryan Spivey       | Sr. | MTD   | Richard Miles                         |
| Elanje Flowers*   | Sr. | SSWC  | Rebecca Katz                          |
| Demi Jacques*     | So. | SSWC  | Elizabeth Biebel                      |
| Tina Jones*       | Sr. | SSWC  | Lisa Shannon                          |
| Danielle Story*   | Sr. | SSWC  | Bernadette Barton/<br>Connie Hardesty |
| Sonja Pennington* | Sr. | SSWC  | Elizabeth Biebel                      |
| Elizabeth Harlow  | Jr. | SSWC  | Bernadette Barton                     |
| Sarah Johnson     | Jr. | SSWC  | Lisa Shannon                          |
| Hannah Willis*    | Jr. | SSWC  | Rebecca Katz                          |

#### COLLEGE OF SCIENCE AND TECHNOLOGY

| Student             | URF | Class | Department | Mentor (s)                 |
|---------------------|-----|-------|------------|----------------------------|
| Brandon White*      |     | Sr.   | AET        | Hans Chapman               |
| Andrew Greene*      |     | Fr.   | AET        | Hans Chapman               |
| Justine Griesenauer |     | Sr.   | AGR        | Barb Lewis                 |
| Shawn Moore*        |     | Jr.   | AGR        | Tammy Platt/<br>Tyler Mark |
| Russell Miller*     |     | Sr.   | AGR        | Duane Chappell             |
| Moriah Penick       |     | Sr.   | AGR        | Ben Williamson             |
| Clayton Wilson      |     | So.   | AGR        | Tyler Mark                 |
| Ashley Ruth*        |     | Sr.   | BIOL       | Sean O'Keefe               |
| Minus Ray Helton*   |     | So.   | BIOL       | Kurt Gibbs                 |
| Sarah McClanahan*   |     | So.   | BIOL       | Michael Fultz              |
| Jackie Carder*      |     | Sr.   | BIOL       | Sean O'Keefe               |
| Victoria Evans*     |     | So.   | BIOL       | Allen Risk                 |
| Jessica Farrell*    |     | So.   | BIOL       | Matthew Ellison            |

|                      |     |      |   |
|----------------------|-----|------|---|
| Meredith Eckstein*   | So. | BIOL | David Peyton  |
| Marina Kirtland*     | So. | BIOL | David Peyton  |
| Tiffany Hunter*      | Sr. | BIOL | Sean O'Keefe  |
| Rebecca Roberts*     | Sr. | BIOL | Sean O'Keefe  |
| Alexandria Williams* | So. | BIOL | Matthew Ellison                                     |
| Joshua Ferrell*      | Sr. | BIOL | Janelle Hare  |
| Marisa Kamelgarn*    | Sr. | BIOL | Geoffrey Gearner                                    |
| Adam Davis*          | So. | BIOL | Douglas Dennis                                      |
| Harley Davis*        | So. | BIOL | Kurt Gibbs  |
| Jessica Lemley*      | Jr. | BIOL | David Smith   |
| Erin Waddell*        | Jr. | BIOL | David Smith   |
| Kathryn Renyer*      | Jr. | BIOL | Ann Macintosh                                       |
| Erica Eldridge       | Sr. | BIOL | Allen Risk  |
| Kelly Modaff*        | Jr. | BIOL | Allen Risk  |
| Lacey Pyles*         | Jr. | BIOL | Allen Risk  |
| Danielle Myers       | So. | BIOL | Kurt Gibbs  |
| Calie Morgan*        | So. | BIOL | Kurt Gibbs  |
| Stephanie Tom        | Fr. | BIOL | Douglas Dennis                                      |
| Emma Uchida          | Fr. | BIOL | Douglas Dennis                                      |
| Kasey Reed*          | Jr. | BIOL | Geoffrey Gearner                                    |
| Brooke Washburn*     | So. | BIOL | David Eisenhour                                     |
| Natasha Whitt*       | So. | BIOL | Geoffrey Gearner                                    |
| Taylor Gasser*       | Jr. | BIOL | Herb Hedgecock                                      |
| Whitley Whitehead    | Jr. | BIOL | Herb Hedgecock                                      |
| Andrea Wilhoite*     | So. | BIOL | Zexia Barnes  |
| Travis Witkowski*    | So. | BIOL | Janelle Hare  |
| Mary Webb*           | So. | BIOL | Allen Risk  |
| Hannah Mabry         | Fr. | EASS | Jeff Kruth  |
| Ashley Boyd*         | Sr. | EASS | Charles Mason                                       |
| Kristin Young        | Jr. | EASS | Tom Pannuti   |
| Kien Dang*           | Jr. | EASS | Kevin Brown   |
| Jordan Healea*       | Jr. | EASS | Robert Twiggs                                       |
| Justin Collins       | So. | EASS | Jen O'Keefe   |
| William Moffitt*     | Jr. | EASS | Tom Pannuti   |
| William Grey         | Sr. | EASS | Ben Malphrus  |
| Cara DeMoss          | Sr. | EASS | Ben Malphrus  |
| Kurstie Dutton*      | Jr. | EASS | Jen O'Keefe   |
| Miranda Holbrook*    | So. | HWHP | Jennifer Dearden/<br>Gina Gonzalez                  |
| Morgan Cox           | Jr. | HWHP | Manuel Probst                                       |
| William Parker*      | Jr. | MCSP | Gary O'Dell   |
| Erich Hohenstein*    | So. | MCSP | Sherif Rashad                                       |
| Joseph Blanton*      | Sr. | MCSP | Sherif Rashad                                       |
| Dalton Stamper       | Fr. | MCSP | Sherif Rashad                                       |
| William Parker*      | Jr. | MCSP | Robin Blankenship/<br>Doug Chatham/<br>Duane Skaggs |
| Michael McGinnis     | So. | MCSP | Robin Blankenship/<br>Doug Chatham/<br>Duane Skaggs |
| Aaron Ballard        | Jr. | MCSP | Sherif Rashad                                       |
| Jorge Chang*         | Jr. | MCSP | Heba Elgazzar                                       |
| Zane McQueary*       | Fr. | MCSP | Jennifer Birriel                                    |

|                     |     |      |   |
|---------------------|-----|------|---|
| William Carson      | Fr. | MCSP | Sherif Rashad                                       |
| Hunter Noble        | Fr. | MCSP | Heba Elgazzar                                       |
| Jonathan Byrd       | Fr. | MCSP | Robin Blankenship/<br>Doug Chatham/<br>Duane Skaggs |
| Joshua Carroll      | Fr. | MCSP | Sherif Rashad                                       |
| Samantha Toepfer*   | Jr. | MCSP | Wilson Gonzalez-<br>Espada                          |
| Scott Blankenship*  | Jr. | MCSP | Jennifer Birriel                                    |
| Trevor Satterfield* | Jr. | MCSP | Jennifer Birriel                                    |
| Logan Higginbotham  | Sr. | MCSP | Doug Chatham  |
| Trenton Peterman*   | Jr. | MCSP | Kent Price  |
| Biswas Sharma*      | So. | MCSP | Robin Blankenship/<br>Doug Chatham/<br>Duane Skaggs |
| Zachary Lamb*       | So. | MCSP | Sherif Rashad                                       |
| Bryan Conn          | Jr. | MCSP | Jennifer Birriel                                    |
| Kendra Combs        | Jr. | PSY  | David Butz  |
| Paige Doyle*        | Sr. | PSY  | Shari Kidwell                                       |
| Justin Hargett*     | Jr. | PSY  | David Butz  |
| Alyssa Franklin*    | Sr. | PSY  | Gregory Corso                                       |
| Shelby House*       | Sr. | PSY  | Shari Kidwell                                       |
| Gianni Maione*      | Sr. | PSY  | Ilsun White   |
| Martina Wagoner*    | Sr. | PSY  | David Butz  |
| Racheal Whitley     | Sr. | PSY  | Ilsun White   |
| Nolan Williams*     | Jr. | PSY  | Laurie Couch  |
| Natalie Justice*    | Jr. | PSY  | Wesley White  |
| Makinzee Tatman*    | So. | PSY  | Wesley White  |

#### **Kentucky Center for Traditional Music**

| <b>Student URF</b> | <b>Class</b> | <b>Department</b> | <b>Mentor (s)</b> |
|--------------------|--------------|-------------------|-------------------|
| Cody Pearman       | So.          | KCTM              | Jesse Wells       |
| Thomas Albert      | Sr.          | KCTM              | Jesse Wells       |
| Brock O’Cull*      | Sr.          | KCTM              | Jesse Wells       |
| Linda Stokley      | Sr.          | KCTM              | Jesse Wells       |

#### **Camden-Carroll Library**

| <b>Student URF</b> | <b>Class</b> | <b>Department</b> | <b>Mentor (s)</b> |
|--------------------|--------------|-------------------|-------------------|
| Carter Kozar       | Fr.          | CCL               | Karla Aleman      |
| Dakoda Trenary     | So.          | CCL               | Karla Aleman      |

**\*Presenting at the 2013 Celebration of Student Scholarship**

## *Student Index*

|                               |            |
|-------------------------------|------------|
| Adams, Emily .....            | 55         |
| Alalawi, Haidar .....         | 58         |
| Albert, Thomas .....          | 69         |
| Bailey, Caitlin .....         | 20, 66     |
| Baker, Autumn .....           | 20, 66     |
| Ballard, Aaron .....          | 68         |
| Bard, Traci .....             | 27, 66     |
| Bauer, Jayme .....            | 58         |
| Becklheimer, Sarah .....      | 66         |
| Bender, Rachel .....          | 41, 66     |
| Bevins, Benjamin .....        | 55         |
| Blankenship, Scott .....      | 55, 69     |
| Blanton, Joseph .....         | 56, 68     |
| Bodenlos, Emily .....         | 41, 66     |
| Bond, Shelby .....            | 58         |
| Boyd, Ashley .....            | 17, 68     |
| Boyd, Shauna .....            | 62         |
| Bradley, James .....          | 46         |
| Branam, Shelby .....          | 58, 59     |
| Branham, Brittany .....       | 54         |
| Breeding, John .....          | 30, 67     |
| Brewington, Megan .....       | 41, 66     |
| Brooke, Sharon .....          | 52, 53     |
| Brown, Faith .....            | 67         |
| Brown, Trevor .....           | 67         |
| Bryant, Lisa .....            | 35         |
| Burns, Stephanie .....        | 61         |
| Burton, Kayla .....           | 10, 67     |
| Bush, Samantha .....          | 58         |
| Byrd, Jonathan .....          | 69         |
| Cagle, Nikki .....            | 32, 67     |
| Caldwell, Ben .....           | 8, 67      |
| Cantrell, Michael Blake ..... | 45         |
| Carder, Jackie .....          | 50, 67     |
| Carroll, Joshua .....         | 69         |
| Carson, William .....         | 69         |
| Castle, Brooklynn .....       | 36         |
| Cavins, Andrew .....          | 24         |
| Chalk, Katarina .....         | 36, 66     |
| Chang, Jorge .....            | 18, 68     |
| Chapman, Jaime .....          | 41, 66     |
| Chin, Fredrick .....          | 61         |
| Cirbo, Morgan .....           | 56         |
| Clark, Annie .....            | 36         |
| Clausen, Amy .....            | 13, 36, 66 |
| Coldiron, Amy .....           | 54         |
| Collins, Justin .....         | 68         |

|                            |            |
|----------------------------|------------|
| Combs, Kendra .....        | 69         |
| Conn, Bryan .....          | 17, 69     |
| Cook, Ashley.....          | 59         |
| Cook, Hunter.....          | 62         |
| Coombs, Nelson.....        | 54         |
| Corum, Joshua.....         | 11         |
| Cox, Morgan .....          | 68         |
| Crump, Carolyn.....        | 56         |
| Cundiff, Michael .....     | 33         |
| Dang, Kien .....           | 24, 68     |
| Daugherty, Brittany.....   | 59         |
| Davidson, Emry .....       | 7          |
| Davis, Adam .....          | 15, 68     |
| Davis, Harley .....        | 45, 68     |
| DeMoss, Cara.....          | 68         |
| Dixon, Adam.....           | 33, 67     |
| Doyle, Paige.....          | 61, 69     |
| Dusing, Matthew.....       | 33         |
| Dutton, Kurstie.....       | 52, 53, 68 |
| Dye, Johnathon .....       | 21, 27, 66 |
| Dyer, Haley .....          | 45, 67     |
| Dyer, Taylor .....         | 66         |
| Eckstein, Meredith .....   | 48, 68     |
| Eldridge, Erica .....      | 68         |
| Evans, Victoria.....       | 15, 67     |
| Fannin, Shelley .....      | 36         |
| Farhat, Caitlin .....      | 30         |
| Farrell, Jessica.....      | 46, 67     |
| Felice, Maria .....        | 7, 67      |
| Ferrell, Joshua.....       | 46, 68     |
| Fitzpatrick, Jonathan..... | 24         |
| Fitzpatrick, Casey .....   | 61, 65     |
| Flannery, Lauren.....      | 54         |
| Fletcher, Mercedes.....    | 58         |
| Flowers, Elanje .....      | 34, 67     |
| Foss, Garrett.....         | 59         |
| Franklin, Alyssa .....     | 62, 69     |
| Frisby, Sara .....         | 37         |
| Fugate, Katelyn.....       | 63, 65     |
| Fugett, Shelby .....       | 37         |
| Fyffe, Bradley .....       | 21, 66     |
| Gaddie, Stephanie .....    | 59         |
| Galbreath, James .....     | 22, 66     |
| Gasser, Taylor.....        | 11, 68     |
| Geiman, Laura.....         | 38         |
| Gingras, Carole-Rose.....  | 17         |
| Goble, Josh.....           | 32, 67     |
| Goble, Sabrina.....        | 29, 66     |

|                            |            |
|----------------------------|------------|
| Grandison, Joshua .....    | 7          |
| Greene, Andrew .....       | 12, 67     |
| Grey, William .....        | 68         |
| Grice, Allison.....        | 52         |
| Griesenauer, Justine ..... | 67         |
| Grindrod, Jennafer. ....   | 24         |
| Gruenschlaeger, Anne.....  | 46         |
| Haas, Samantha.....        | 11         |
| Hager, James Kyle .....    | 10         |
| Hamilton, Brannah.....     | 33         |
| Hammond, Pamela Shay.....  | 7, 67      |
| Hargett, Justin .....      | 62, 69     |
| Harless, Alicia.....       | 28, 58, 66 |
| Harlow, Elizabeth .....    | 67         |
| Harmon, Bryan.....         | 31         |
| Harper, Megan .....        | 5, 66      |
| Hart, Cody.....            | 22         |
| Haughery, John .....       | 44         |
| Hauris, Katy .....         | 62         |
| Hawkins, Ethan .....       | 47         |
| Haymond, Julie .....       | 5, 66      |
| Healea, Jordan.....        | 25, 68     |
| Heflin, Tammy.....         | 58         |
| Helton, Minus .....        | 47, 67     |
| Heston, Caroline. ....     | 38, 66     |
| Hicks, Mckenzie .....      | 58         |
| Hicks, Molly .....         | 58         |
| Higginbotham, Logan .....  | 69         |
| Hill, Kelsey .....         | 60         |
| Hobgood, Woon-Joo.....     | 55         |
| Hohenstein, Erich.....     | 18, 68     |
| Holbrook, Miranda.....     | 53, 68     |
| Hopkins, Rebecca .....     | 28, 66     |
| House, Shelby .....        | 63, 65, 69 |
| Huff, Kayla .....          | 58         |
| Huffman, Julia.....        | 67         |
| Hughes, Rhonda.....        | 59         |
| Humphreys, Geri.....       | 59         |
| Hunter, Tiffany .....      | 47, 68     |
| Hylton, Brandon.....       | 66         |
| Ison, Megan.....           | 30, 67     |
| Jackson, Medina.....       | 64         |
| Jacobs, Austin .....       | 42         |
| Jacques, Demi .....        | 34, 67     |
| Jenne, Madeline .....      | 38         |
| Johnson, Lanora .....      | 10, 67     |
| Johnson, Sarah .....       | 67         |
| Johnson, Veronica.....     | 7          |
| Johnston, Allison.....     | 14, 66     |



|                              |            |
|------------------------------|------------|
| Jones, Tina .....            | 34, 67     |
| Jones, Whitney .....         | 31, 67     |
| Justice, Natalie .....       | 63, 65, 69 |
| Kamelgarn, Marisa.....       | 48, 68     |
| Katz, Leah .....             | 64         |
| Kendall, Brooklyn.....       | 36, 66     |
| Key, Destiny .....           | 60         |
| Khouja, Slim .....           | 48         |
| Kirtland, Marina.....        | 48, 68     |
| Knox, Elizabeth.....         | 61, 65     |
| Kolb, Ellen .....            | 45         |
| Koontz, Kelsey.....          | 39, 66     |
| Kosakowski, Alekzander ..... | 53         |
| Kozar, Carter .....          | 69         |
| Kramer, Molly.....           | 60         |
| Lamb, Zachary .....          | 19, 69     |
| Lambert, Taylor .....        | 39         |
| Lee, Benjamin .....          | 31         |
| Lemley, Jessica .....        | 49, 68     |
| Lewis, Taylor .....          | 21, 27     |
| Li, Dandan.....              | 64         |
| Lindsey, Megan.....          | 62         |
| Lowe, Jonathan .....         | 54         |
| Mabry, Hannah .....          | 68         |
| Madden, Tara .....           | 5, 66      |
| Maione, Gianni .....         | 15, 63, 69 |
| Martinez, Malissa.....       | 60         |
| Mason, Nicholas .....        | 27, 66     |
| McCarty, Ethan .....         | 54         |
| McCauley, Lauren.....        | 42         |
| McClain, Krista.....         | 55         |
| McClanahan, Sarah .....      | 49, 67     |
| McCormick, Matthew .....     | 22         |
| McCoy, Rebekkah.....         | 42         |
| McGinnis, Jason.....         | 19         |
| McGinnis, Michael .....      | 68         |
| McKenzie, Chace.....         | 39         |
| McKinley, Zachary .....      | 49         |
| McQueary, Zane .....         | 19, 68     |
| Messer, James Logan .....    | 62         |
| Messer, Katherine. ....      | 32, 67     |
| Miller, Travis .....         | 25         |
| Miller, Russell.....         | 43, 67     |
| Mills, James .....           | 31, 67     |
| Modaff, Kelly.....           | 16, 68     |
| Moffitt, William.....        | 25, 68     |
| Molton, Brandon.....         | 24         |
| Moore, Shawn Tyler .....     | 42, 67     |
| Morgan, Calie .....          | 49, 68     |

|                              |                |
|------------------------------|----------------|
| Morris, Ashley .....         | 64             |
| Mullins, Natasha .....       | 58             |
| Murphy, Cassondra .....      | 67             |
| Murphy, Cody .....           | 21, 27, 28, 66 |
| Murray, Kendra .....         | 62             |
| Murray, Melissa .....        | 54             |
| Myers, Danielle .....        | 68             |
| Myers, Irene .....           | 60             |
| Nae, Oana .....              | 11, 67         |
| Napier, Jared .....          | 26             |
| Nauman, Alice .....          | 64             |
| Neal, Cristal .....          | 60             |
| Nettleton, D. Scott .....    | 23             |
| Nickell, Joel .....          | 18             |
| Noble, Hunter .....          | 69             |
| Noe, Marisa .....            | 22             |
| O’Cull, Brock .....          | 34, 69         |
| Pacitto, Alex .....          | 61             |
| Pack, Kaitlynn .....         | 58             |
| Parker, Rebecca .....        | 9, 33, 67      |
| Parker, William .....        | 57, 68         |
| Patierno, Danny .....        | 22             |
| Patrick, Taylor .....        | 62, 64         |
| Payne, Amy .....             | 11             |
| Pearman, Cody .....          | 69             |
| Penick, Moriah .....         | 67             |
| Pennington, Sonja .....      | 35, 67         |
| Peterman, Trenton .....      | 12, 69         |
| Peterson, Annie .....        | 6, 66          |
| Pfalzer, Laura .....         | 21, 27, 29, 66 |
| Phillips, Toney Nelson ..... | 17             |
| Phillips, Whitney .....      | 22             |
| Pickering, Carl .....        | 53             |
| Prater, Wade .....           | 55             |
| Pugh, Alexis .....           | 60             |
| Pyles, Lacey .....           | 16, 68         |
| Ransom, Samantha .....       | 33             |
| Rasp, Benjamin .....         | 16             |
| Reams, Katherine .....       | 7              |
| Reed, Kasey .....            | 48             |
| Reed, Oriana .....           | 61, 62, 65     |
| Rehkamp, Julie .....         | 31             |
| Reinke, Alex .....           | 31, 67         |
| Renyer, Kathryn .....        | 50, 68         |
| Rice, Katherine .....        | 22             |
| Rice, Megan .....            | 60             |
| Richardson, Channing .....   | 15             |
| Richmond, Jackie .....       | 60             |
| Roberts, Paula Jo .....      | 33, 67         |

|                           |            |
|---------------------------|------------|
| Roberts, Rebecca.....     | 50, 68     |
| Robinette, Kayla .....    | 39         |
| Rose, Terri.....          | 66         |
| Ruggiero, Ashley .....    | 22, 66     |
| Ruth, Ashley .....        | 51, 67     |
| Sammons, Brooklyn.....    | 43         |
| Sanders, Melissa .....    | 61         |
| Santiago, Natalia.....    | 14         |
| Sarda, Johanna .....      | 67         |
| Satterfield, Trevor ..... | 57, 69     |
| Saunders, Carly .....     | 6, 66      |
| Sea, Maggie.....          | 62         |
| Sewell, Lauren .....      | 59         |
| Sharma, Biswas.....       | 23, 26, 69 |
| Shepherd, Sadie.....      | 61         |
| Sizemore, Kayla.....      | 63, 64, 65 |
| Skaggs, Clay .....        | 29, 66     |
| Skaggs, Danielle .....    | 61         |
| Sloas, Megan.....         | 6          |
| Slover, Caitlin .....     | 30         |
| Smith, Leah .....         | 62         |
| Smith, Porsha .....       | 29         |
| Smith, Ryan.....          | 62         |
| Spencer, Robert.....      | 44         |
| Spivey, Chris.....        | 34         |
| St. John, Kelsey.....     | 40         |
| Stacy, Kristen .....      | 62         |
| Staggs, Kara .....        | 7, 66      |
| Stamper, Dalton .....     | 68         |
| Stark, Jaysa .....        | 58         |
| Stevens, Marshall.....    | 9          |
| Stevens, Sherilee .....   | 62         |
| Stokley, Linda.....       | 69         |
| Stone, Breanna .....      | 55         |
| Story, Danielle .....     | 13, 67     |
| Stricklen, Mark .....     | 46         |
| Sullivan, Spencer .....   | 58, 67     |
| Synder, Arian .....       | 60         |
| Tackett, Brandon.....     | 60         |
| Tatman, Makinzee.....     | 64, 65, 69 |
| Taulbee, Zachary.....     | 26         |
| Tevis, Jessi .....        | 40         |
| Thornberry, Morgan .....  | 61         |
| Toepfer, Samantha .....   | 57, 69     |
| Tom, Stephanie .....      | 68         |
| Tran, Yen .....           | 20, 66     |
| Trenary, Dakota .....     | 69         |
| Tussey, Heather.....      | 22         |
| Uchida, Emma.....         | 68         |

|                            |            |
|----------------------------|------------|
| Ulery, Morgan.....         | 40         |
| Vance, Courtney .....      | 43         |
| Volk, Rebecca .....        | 23         |
| Waddell, Erin .....        | 49, 68     |
| Wagoner, Martina .....     | 65, 69     |
| Ward, Tina .....           | 65         |
| Washburn, Brooke. ....     | 11, 17, 68 |
| Watkins, Ramona.....       | 54         |
| Watson, Charles .....      | 12, 44     |
| Webb, Hannah.....          | 30, 67     |
| Webb, Mary .....           | 51, 68     |
| Weeks, Brittany.....       | 61, 65     |
| Wells, Chad.....           | 21, 27, 29 |
| Whisman, Ben.....          | 8, 67      |
| Whitaker, Joseph.....      | 22         |
| White, Brandon Scotty..... | 44, 67     |
| White, Jillian .....       | 60         |
| White, Maria .....         | 40         |
| Whitehead, Whitley .....   | 68         |
| Whitley, Racheal.....      | 69         |
| Whitt, Alix .....          | 59         |
| Whitt, Chelsea.....        | 62         |
| Whitt, Natasha.....        | 11, 48, 68 |
| Whittle, Garrick .....     | 23         |
| Wilhoite, Andrea.....      | 51, 68     |
| Wilkin, Taylor.....        | 60         |
| Williams, Alexandria ..... | 52, 68     |
| Williams, Drew .....       | 57         |
| Williams, Nolan .....      | 61, 65, 69 |
| Willis, Hannah .....       | 13, 67     |
| Wilson, Clayton .....      | 67         |
| Wingate, Skye.....         | 62         |
| Witkowski, Travis.....     | 52, 68     |
| Woodall, Samantha.....     | 22         |
| Wooten, Lauren.....        | 33         |
| Wulker, Brian.....         | 47         |
| Yoshimura, Jaison.....     | 54         |
| Young, Kristin.....        | 68         |