

**Program and Abstracts**  
**Celebration of**  
**Student Scholarship**

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

**April 21, 2010**

# Celebration of Student Scholarship

## April 21, 2010

### Program Overview

Adron Doran University Center

Registration, poster and Powerpoint set-up, and continental breakfast	8:00 – 8:55 a.m.	
Oral Presentations	9:00 – 11:30 a.m.	301, 302, 312, Riggle, Commonwealth & Eagle Meeting Rooms
Lunch	11:45 – 12:45 p.m.	Crager Room
A. Frank and Bethel C. Gallaher Memorial Music Performance	12:45 – 1:00 p.m.	Crager Room
Poster Presentations	1:00 – 3:00 p.m.	Crager Room
Concluding Remarks	3:00 p.m.	Crager Room
Poster removal	3:10 p.m.	

### Welcome Statements.....2

Wayne Andrews, President  
Karla Hughes, Provost  
Bruce Mattingly, Associate Vice President for Research  
Robert Albert, Dean, College of Business and Public Affairs  
Cathy Gunn, Dean, College of Education  
M. Scott McBride, Interim Dean, Caudill College of Arts, Humanities and Social Sciences  
Gerald DeMoss, Dean, College of Science and Technology

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I am pleased to welcome you to the Fifth Annual Celebration of Student Scholarship at Morehead State University. During this campus-wide event, the University community will acknowledge the excellent efforts of students in research, scholarship, and creative productions. I take great pride that at MSU, scholars teach and empower a diverse population of students to succeed in pursuing their educational goals.



As president of this great University, I firmly believe that scholarship and service go hand in hand with teaching in providing the most effective learning environment. Faculty members who mentor students in research and other creative activities provide a vital spark that challenges and stimulates these creative minds. As a result, our academic programs provide abundant opportunities for students to work side by side with faculty in meaningful research and creative initiatives. This special event provides a unique opportunity for everyone to see the products of these faculty-mentored student projects. The work presented by these students is truly amazing!

As you review the Celebration of Student Scholarship program, you will find an array of undergraduate accomplishments in individual and group research projects, creative efforts, and artistic performances in a variety of academic disciplines. By attending this showcase, you provide support and encouragement to our young scholars and artists.

The vision for our University is to be recognized for our superb teaching and scholarship. Through the efforts of our dedicated faculty, Morehead State University will become a premier "institution of choice" for students who want to engage in the process of discovery and become outstanding citizens in an ever challenging and changing 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**

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*“Faculty actively engaged in the scholarship of their discipline make outstanding role models and mentors, and provide students with integrative learning opportunities difficult to achieve in the traditional classroom setting. The quality of the work presented in this showcase by these undergraduate students clearly demonstrates the importance of the Teacher-Scholar model.”*

Dr. Bruce Mattingly, Associate Vice President for Research

*“The Student Research and Creativity Celebration 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

*“Those within the arts, humanities, and social sciences applaud the focus and priority placed on collaborative learning that brings faculty and undergraduate students together as partners in research and creative production. An education curriculum based upon ‘Undergraduate Scholarship’ enhances a student’s entire academic experience by advancing interdisciplinary collaboration, deepening scholarly engagement and empowering students and faculty to work as partners in practice. 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, Interim Dean, Caudill College of Arts, Humanities, and Social Sciences



*“The Celebration of Student Scholarship is an exciting and stimulating event that marks the culmination of research experiences and creative productions accomplished each academic year through collaborative efforts among student scholars and their faculty mentors. Research and creative production opportunities foster student engagement in meaningful inquiry to enhance teaching and learning throughout the academy. This Celebration highlights the intellectual capacity of the Student-Scholar Model to achieve academic excellence at Morehead State University.”*

Dr. Gerald DeMoss, Dean, College of Science and Technology

# Celebration of Student Scholarship

Adron Doran University Center  
Morehead State University

April 21, 2010

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## Concurrent Session - ADUC 301

**9:00 – 9:15 a.m.**      **Growing a satellite market sector in Morehead & Eastern Kentucky**

**301**

***\*Julia O'Brien, Professor Robert Twiggs and Dr. Benjamin Malphrus, Mentors, Department of Earth and Space Science, College of Science and Technology***

As the space industry turns to the academic community and private sector for affordable access to space, there are numerous opportunities to leverage state-of-the-art resources at MSU's Space Science Center to jumpstart a local space economy. Through the development of an educational network – called Astroworks and founded by MSU Professor Robert Twiggs, who is inventor of the CubeSat satellite standard (a pico-class satellite weighing 1kg or less) – this initiative will serve as a communication channel for small satellite and payload development and launch, flight and ground station opportunities for students, educators and space pioneers. This project is generously supported by an Undergraduate Research Fellowship.

**9:15 – 9:30 a.m.**      **A search for X-ray counterparts to known optical and radio supernova remnants in the galaxy NGC 2403**

**301**

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

Supernova remnants (SNRs) are the expanding shock fronts resulting from the deaths of either massive stars and or white dwarf stars in binary systems in supernovae explosions. I analyzed data from archived observations made by the *Chandra* X-ray Observatory to identify counterparts to SNRs identified by prior optical and radio searches in the nearby galaxy NGC 2403, a spiral galaxy located 3.2 Mpc away. The data was reduced with the CIAO software package and the tool "wavdetect" was used to detect sources and measure photon counts, from which flux densities and luminosities were calculated. Three counterparts were found out of thirty-six potential sources. This research is supported by a grant from The Kentucky Space Grant Consortium.

**9:30 – 9:45 a.m.**      **An overview of radio monitoring of radio-luminous blazars with the Morehead State space tracking antenna**

**301**

***\*Caleb K. Grimes, Nathan D. Fite, Emily J. Goff, Josh M. Tussey, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Science, College of Science and Technology***

As of 2007 the MSU Space Tracking Antenna has been actively involved in monitoring emission from radio-luminous blazars. Blazars are known for unpredictable variability across the electro-magnetic spectrum; however, the variability seems to be poorly studied at higher radio frequencies. To further the knowledgebase of this intrinsic variability our efforts have focused on five specific blazars, (most notably 3C 454.3) to help constrain models of blazar behavior. Observations have been conducted at both the L and Ku-Band to discern the respective variability characteristics of these sources. To complement the radio observations and further understand the physical characteristics of blazars, initial research has begun to analyze *Chandra* data of these sources. Support for this project comes from the Kentucky Space Grant Consortium.

Program  
Schedule

**9:45 – 10:00 a.m.      Integrated risk-based classification system**

**301**

***\*Jared May, Dr. Nilesh Joshi, Mentor, Department of Industrial and Engineering Technology, College of Science and Technology***

Inventory classification and management is a complex problem and is of great interest to manufacturing as well as service organizations. This research has developed and tested a new integrated risk-based inventory classification (IRIC) system. The developed methodology identifies various attributes of inventory items and groups them in three major categories: performance, risk, and cost. A weighted sum approach is used to combine the inventory attributes within each category to form a master attribute for each of the three categories. Finally, an advanced clustering algorithm is used to measure the overall similarity between pairs of inventory items and to classify them in different groups based on their closeness to each other. This project is supported by the MSU Undergraduate Research Fellowship and the RCPC grant.

**10:00 – 10:15 a.m.      Covering powers of cycles by equivalence relations**

**301**

***\*Brian Salyer, Dr. Robin Blankenship, Dr. R. Douglas Chatham and Dr. R. Duane Skaggs, Mentors, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

The equivalence number of a graph is the minimum number of equivalence relations needed to cover the edge set of the graph. We consider in particular the  $K^{\text{th}}$  power of a cycle, which is formed from a cycle by adding edges between all vertices in the cycle that are at a distance less than or equal to  $K$ . We provide an upper bound on the equivalence number of powers of cycles. This research is funded through an Undergraduate Research Fellowship.

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      Knot mosaics using hex-tiles**

**301**

***\*Craig Hamilton, Dr. Robin Blankenship, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Knot mosaics using square tiles, studied by Lomonaco and Kauffman, inspired the creation of hex-tile knot mosaics, tessellations of hexagons with one, two, or three strands connecting midpoints of edges in various over and under crossing patterns, used to create knots and links. Results similar to Kuriya's involving mosaic planar isotopy moves and Reidemeister moves will be discussed, in addition to investigating knots that can be constructed within a given radius using a fixed two-strand tile with a single crossing at its center.

**10:45 – 11:00 a.m.      Data mining the 4G network**

**301**

***\*Joshua Bradley, Dr. Sherif S. Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

Due to the rise of location based services and the upcoming fourth generation (4G) cellular network, there is motivation to define 4G network standards. Mobile users are thought to be predictable on a daily basis. The presentation will focus on algorithm MobileSPADE, which utilizes data partitioning methods via time frame windows, a classification scheme to define week days and weekends, and various other predictive analytics to extract frequent sequential mobility patterns from past mobility decisions made by a mobile user. Affects of this research extend to a better consolidation of network resources, targeted advertising, and improved signal communication reception. Tests show MobileSPADE exhibits remarkable performance results in the prediction of future mobile decisions for predictable mobile users. This research was supported by Morehead State University Undergraduate Research Fellowship.

**11:00 – 11:15 a.m.      Learning software evaluation: Hawkes Learning System**

**301**

**\*Jessamyn Delgado, Dr. Sherif Rashad, Mentor, Computer Science Capstone Research Project, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Morehead State University uses many different educational technology tools in its classrooms, and the focus of this research is on the Hawkes Learning System. Before determining if the Hawkes Learning System is a successful and effective learning software, the requirements of/for effective learning software must be determined. An analysis will be presented to determine if the Hawkes Learning System meets those requirements. Suggestions will be presented as to how to better utilize the software in the classroom environments on Morehead State University's campus as well as additional information on how the software could be modified to better meet the needs of the students and facilities for Morehead State University. Options for further research will be presented as the conclusion to this current research.

**11:15 – 11:30 a.m.      Does the Rook card make a difference?**

**301**

**\*Lauren May, Dr. R. Douglas Chatham, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

The card game *Rook* did not originally include a Rook card. Strategies and statistics for the game were established in *The Rook Book*. This presentation examines some of those strategies and statistics addressed in the book to determine if including the Rook card makes a difference in game play.

# Concurrent Session - ADUC 302

**9:00 – 9:15 a.m.**      **My “Original” Kentucky Home**

**302**

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

Kentucky, as part of the larger Ohio River Valley, was a significant area for surrounding tribes, including the Shawnee. This fertile Appalachian mecca was rich in natural resources, but was not claimed by any one group. Indigenous practices tied to the land, such as salt harvesting, natural medicine, and careful hunting, were shared with newly arriving settlers. All of this caused the region to be both attractive and subject to violent conflict. It made people like Daniel Boone famous and places like Fort Boonesborough extremely significant. This paper is drawn from research conducted with the aim of guiding a diorama design on the Shawnee for the fort's museum--one that will be both historically accurate and culturally sensitive. It attempts to sort myth, legend, and history of this "dark and bloody ground" of Appalachia.

**9:15 – 9:30 a.m.**      **Eastern Kentucky arts project and oral history research**

**302**

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

The Eastern Kentucky Arts Project seeks to nurture the visual arts of Kentucky's Appalachian counties by providing information on the region's arts-related resources. One important resource EKAP has recently been working with is oral histories. Our goal is to locate all previously collected oral histories by searching various sources, such as the Kentucky Folk Art Center, the Kentucky Oral History Commission, and the Federal Writer's Project. We are also working to record new interviews and make them available for use by community members. The Center for Regional Engagement supports this program.

**9:30 – 9:45 a.m.**      **Gallery and exhibition programming: Management, logistics, and design**

**302**

**\*Cecily Howell, Jennifer Reis, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

The Undergraduate Fellowship in Gallery and Exhibition Programming: Management, Logistics, and Design focused on both practicum and theoretical concepts related to exhibition management manifesting in eight exhibitions (national, regional, and faculty/student) hosted at the Claypool-Young Art Gallery, MSU. This fellowship emphasized project management logistics, exhibition design including layout design and creation of wall text, exhibition and arts programming promotion, visiting artist hospitality and event oversight, public relations specific to visiting artists and scholars, and art handling, packing, and shipping. This fellowship was designed to fully prepare one to either enter directly into arts programming administration, gallery and/or museum work, or to obtain a graduate assistantship in a university gallery in pursuit of an M.F.A. This project is supported by the Undergraduate Fellowship Program, the Department of Art & Design, and the Caudill College of Arts, Humanities and Social Sciences.

**9:45 – 10:00 a.m.      A study of the philosophy of art: philosophy and video games**

**302**

**\*Daniel Mattox, Dr. Karen Bardsley, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

This study was an expansive literature review on current writers in the topic of the philosophy of video games. It was done with the hopes of compiling research into an anthology for an undergraduate course in the study of the philosophy of film and art. The literature review covers topics in both continental and analytic philosophy with subjects ranging from the application of Foucault to the question of whether video games can make men better feminists. In parallel with the primary topic of this research several proposals about the nature of love and physicality have been made. This research was made possible by means of the undergraduate research fellowship.

**10:00 – 10:15 a.m.      The reverse ekphrasis project**

**302**

**\*Ryan Andersons, Crystal Wilkinson, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

The Reverse Ekphrasis Project brings together English and Art students and faculty together to create collaborative artwork. Interested writers and artists are randomly selected and paired, one artist to one piece of creative written work. The artist then interprets the written work visually. Visual representations are then shown in a gallery event at the Claypool-Young building where the written works are read and the visual works are displayed to be viewed by all. The Reverse Ekphrasis Project is made possible through an Undergraduate Fellowship.

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      Anarchism in medieval mystery plays**

**302**

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

Medieval mystery plays from the Chester, York, Towneley, and N-town cycles are analyzed from a theoretical perspective informed by the writings of humanistic anarchists such as Pierre-Joseph Proudhon, Mikhail Bakunin, Peter Kropotkin, and Emma Goldman. The analysis reveals that medieval mystery plays contain observable and incisive criticism of the State and proto-Capitalistic systems of power. The presence of anarchist sentiments in the plays calls into question the conventional view of the Middle Ages as a time of pious conformity and obedience to religious and political authorities. This research was supported by a MSU Undergraduate Research Fellowship.

**10:45 – 11:00 a.m.      Going down home: publishing African American women in the new South**

**302**

**\*Stacey Greene, Crystal Wilkinson, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

Crystal Wilkinson's anthology *Down Home: A Portrait of African American Women in the New South* captures the new ideologies of African American women living in the modern Southern states, and includes a variety of literary voices, techniques, and subjects. While the submissions vary, many similarities exist in the themes of the individual pieces. We also reviewed several manuscripts for the upcoming issue of *Mythium*, Crystal Wilkinson's literary magazine, which centers around African American authors as well. The dynamics I experienced working with African American authors, contrasted with my limited personal background experience in the themes/subjects, has allowed a more focused look on the writing art itself, while enabling me to sub-experience and learn about the Southern African American culture as well as publishing.

**11:00 – 11:15 a.m.      A transnational comparison of political media coverage of Angela Merkel, Germany, and Hillary Clinton, U.S.**

**302                              \*Kristin Hausstein, Dr. Sylvia Henneberg, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

The intention of this paper is to identify and analyze the differences in media coverage for the female candidate of the 2005 German General Election and the female candidate of the 2008 U.S. Democratic presidential nomination. In light of Germany electing Angela Merkel as chancellor for the second time in 2009 and Hillary Clinton losing the Democratic presidential nomination to Barack Obama, I assert that U.S. media have a more powerful effect on the public and that they utilize bias gender framing at higher rates. This study draws conclusions about each country's political media system and the role of women in politics. This research was supported by the MSU Undergraduate Research Fellowship.

**11:15 – 11:30 a.m.      Creative administration: building a writing program and community**

**302                              \*Sean L. Corbin, Chris Holbrook, Crystal Wilkinson and Rebecca Howell, Mentors, Department of English, Caudill College of Arts, Humanities, and Social Sciences**

Event planning, program comparisons, idea development and creative thinking were utilized in an effort to build and strengthen new and existing areas of support for creative writers in the MSU writing community and new Creative Writing BFA program. Different methods of development utilized in this regard included parliamentary procedure in organized student meetings, individual conferences between students and between students and faculty, and full-department meetings and seminars between BFA faculty and students with the goal of maximizing professional growth in both workshop/classroom settings and extracurricular lifestyles. This project was supported by MSU Undergraduate Fellowship.

## Concurrent Session- ADUC 312

**9:00 – 9:15 a.m.**      **Analysis of successful and unsuccessful malingering strategies on the CAT-A**

**312**

***Kelly D. Gruber, Dr. Sean P. Reilley, Mentor, Department of Psychology, College of Science and Technology***

Attention Deficit/ Hyperactivity Disorder is a lifespan disorder characterized by inattention, and/or hyperactivity/impulsivity. Adults malingering AD/HD is of concern given credible, web-based information on AD/HD and attractive secondary gain reasons. AD/HD rating scales are widely used, but most are easy to malingering AD/HD due to lack of validity scales. The present study examined the successful and unsuccessful strategies of experimentally coached malingerers (n=40) on the Clinical Assessment of Attention Deficit-Adult (CAT-A), an AD/HD rating scale with validity scales. Results suggest that unsophisticated and coached malingerers who were unsuccessful differed on tendencies to exaggerate items, focus on AD/HD items, and overall confidence in malingering. Research supported by a Morehead State University Undergraduate Research Fellowship and a prior grant from KY EPSCoR.

**9:15 – 9:30 a.m.**      **Use of AD/HD validity scales to reduce malingered childhood AD/HD symptoms on the CAT-A**

**312**

***\*Medina Jackson, Tina Ward, Dr. Sean P. Reilley, Mentor, Department of Psychology, College of Science and Technology***

Attention Deficit/Hyperactivity Disorder includes inattention, hyperactivity/impulsivity, or both sets of symptoms. Interest in adult AD/HD and concerns about potential malingering for secondary gain have risen. The Clinical Assessment of Attention Deficit-Adult (CAT-A), was investigated as it is one of the few instruments that includes AD/HD validity scales to assess response distortion. Ninety participants received AD/HD diagnostic criteria, AD/HD case histories, or general mental health knowledge, and then were asked to respond honestly or to malingering AD/HD on the CAT-A and the Barkley & Murphy AD/HD Scales. The validity scales of the CAT-A detected significance proportions of attempted malingerers relative the Barkley & Murphy instrument, which performed poorly at identifying malingerers. Research supported by a MSU Undergraduate Research Fellowship and a prior grant from KY EPSCoR.

**9:30 – 9:45 a.m.**      **Enhancement of knowledge and successful malingering of current AD/HD symptoms on the CAT-A and ASRS**

**312**

***\*Leah Smith, Katherin Austin, Dr. Sean P. Reilley, Mentor, Department of Psychology, College of Science and Technology***

Interest in Attention Deficit/Hyperactivity Disorder in adults has witnessed an increase in the past ten years. Attention rating scales are commonly used to screen adults for AD/HD, but are vulnerable to malingering, which is made easier by information effortlessly found on the internet. We tested and found that reading published AD/HD case studies found on the internet vs. a control condition helped malingerers increase their AD/HD knowledge and attainment of current AD/HD symptoms in the clinical range on both the Clinical Assessment of Attention Deficit – Adult (CAT-A) and Adult AD/HD Self-report Scale (ASRS). However, knowledge of AD/HD via case studies was not required to successfully malingering AD/HD symptoms on the ASRS and the CAT-A. Research supported by a prior grant from KY EPSCoR.

**9:45 – 10:00 a.m.      Effects of acute and chronic scopolamine on appetitive behavior**

**312**                      **\*Megan Hood<sup>1</sup>, Katie Robinson<sup>1</sup>, Steven Osborne<sup>2</sup>, Dr. Ilun M. White, Mentor<sup>2</sup>, Honors Program<sup>1</sup>, Department of Psychology<sup>2</sup>, College of Science and Technology**

Scopolamine is known to produce memory deficits and hallucinogenic effects on behavior by blocking cholinergic receptors. In this study, we examined the effects of scopolamine on appetitive behavior and simple learning. Male adolescent rats (postnatal days 40-55) were trained to bar press for a food pellet (fixed ratio 1, FR1). Rats were then trained on a subsequent task, FR5, which required the animal to make 5 bar presses for a pellet. Once they reached a behavioral criteria, 60 rewards for two consecutive sessions, rats received either scopolamine (1.0mg/kg) or saline intraperitoneally. Rats were tested on FR5 immediately after injection. Drug testing was done across four consecutive sessions (session/day). In addition, we examined acute effects of scopolamine on a simple spatial task, which required the animal to press the bar opposite to the cue location. We found that scopolamine markedly enhanced the latency of the head-in-feeding-bin latency after the delivery of a pellet, taking longer to retrieve pellets. However, the total number of bar presses and the number of reward obtained in each session was not affected. Similarly, in a spatial task, scopolamine decreased correct responses and increased response latency in a dose-dependent manner. Our data provide evidence that scopolamine affects learning and memory, without affecting consummatory behavior.

**10:00 – 10:15 a.m.      Motivational and interpersonal correlates of the five factor model**

**312**                      **\*Keri Burge, Alyssa Addison, Katie Grigsby, Dr. David R. Olson, Mentor, Department of Psychology, College of Science and Technology**

The Big Five model of personality has emerged as the predominant framework for an understanding of basic personality dimensions. This study investigated relationships between the Five Factor Model (FFM) of personality and basic motivational systems (BIS/BAS) as well as interpersonal distress. Participants completed measures of personality dispositions, approach/inhibitory tendencies, and interpersonal problems. Correlational analyses revealed that extraversion positively correlated with approach tendencies while neuroticism and conscientiousness were inversely related to approach dispositions. Neuroticism was also positively correlated to inhibitory behavior. Extraversion was positively associated with controlling/over-responsible behavior and neuroticism was positively associated with difficulties in assertiveness/sociability. Openness related to difficulties in sociability and agreeableness was associated with difficulties in assertiveness.

**10:15 – 10:30 a.m.      Break**

**10:30 – 10:45 a.m.      Law school admission's testing: are MSU students at a disadvantage?**

**312**                      **\*Susan Ahmadi, Kelly Collinsworth, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences**

The Law School Admissions Test (LSAT) carries substantial weight in determining an applicant's admission to law school, despite recognition that it is an unreliable predictor of law school performance. In 2009, MSU students averaged a score of 147 on the LSAT, several points below the national average. During the course of this research, we examined the purpose of the LSAT and its significant influence in determining scholarships and admissions to top-ranked law schools. We researched possible reasons for why MSU students score below the national average. Finally, we explored potential remedies for this problem at both the individual and institutional levels. This research was supported by an Undergraduate Research Fellowship.

**10:45 – 11:00 a.m.      Jack Johnson and American Masculinity**

**312**

***\*Christopher Wiseman, Dr. Kristina Durocher, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

On July 4, 1910, "The Fight of the Century" took place in Reno, Nevada. Men all across America crowded into venues to listen to the fight between Jack Johnson, the first African American heavyweight boxing champion, and his opponent James J. Jeffries, nicknamed "The Great White Hope." For middle-class white men, the fight was a battle for racial supremacy and masculine virtue. The fight was a way for white American men to justify male supremacy in terms of white racial dominance. Jeffries' defeat to Johnson was a bitter pill for men to swallow; it was in this context that white middle-class men banded together in a harmonious outcry to reclaim their lost masculine identity by continuing the stern oppression of the "Negro" race which continued through much of the twentieth century. This research was supported by MSU Undergraduate Research Fellowship.

**11:00 – 11:15 a.m.      The great white hope: America's answer to Jack Johnson**

**312**

***Christopher Wiseman, Dr. Kristina DuRocher, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences***

On July 4, 1910, "The Fight of the Century" took place in Reno, Nevada when the reigning heavyweight boxing champion, Jack Johnson, and former undefeated heavyweight champion, James J. Jeffries, squared off in a bout that transcended American racial thought. More was on the line than just the Heavyweight Crown. For middle-class white men, the fight was a battle for racial supremacy and masculine virtue. Jeffries' defeat to Johnson was a bitter pill for men to swallow; it represented a threat to their manhood and to white supremacy all together. It was in this context that white middle-class men banded together in a harmonious outcry to reclaim their lost identity.

**11:15 – 11:30 a.m.      Ranking college football with random walkers**

**312**

***\*Evan Boyd, Dr. Christopher Schroeder, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology***

There is a lot of concern with the way college football teams are being ranked, and many systems have been designed to address this issue. We will consider some of these systems, and one in particular which uses a random walker algorithm. We will then show how adding a home-field advantage factor to this particular system affected the overall rankings for the 2009 season. We will compare the results of our modified ranking system with the original random walker rankings which considered only wins and losses. If you don't like Florida, you will probably enjoy this talk. This research was supported by MSU Undergraduate Research Fellowship.

## Concurrent Session – Commonwealth Room

**9:00 - 9:15 a.m. Are we keeping it real? Engaging learners using analogies and objective inquiry**

**Commonwealth**

**\* Joelle Sprague, Dr. Kimberlee Sharp, Mentor, Department of Middle Grades and Secondary Education, College of Education**

This presentation models two instructional strategies for helping students understand the Cabinet's and Lobbyists' influence on policy and legislative decision-making, as well as demonstrates the critical thinking and metacognition skills utilized by students as they engage in the learning activities. The presentation focuses on the recent health care reform, and participants will learn how to integrate high – profile current events into their social studies lessons without sacrificing content coverage. This presentation was presented at the Tennessee Council for the Social Studies conference in Memphis on March 12<sup>th</sup>, 2010.

**9:15 - 9:30 a.m. Power of image in children's literature: "I think I can... I think I can!"**

**Commonwealth**

**\*Suzannah M. Chapman, Dr. Martha M. Decker, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

In a world of texting, Facebook, and Kindle, why is the importance of image so prominent in children's literature? With the increase use of electronic devices, the sales of picture books have stayed steady and remained an important part of children's lives. Picture books, and the images contained in them, seem to be very powerful for children. In this research project the power of image in children's literature will be explored, specifically the impact the images in wordless picture books have on children, and literacy learning (development?). The work of illustrator David Weisner (Tuesday, 1992; The Three Pigs, 2002; Flotsam, 2007) will be used as a case in point. Weisner is a three time Caldecott medal winner for his original wordless picture books and is focused on the imaginative experiences children have when they see images in a picture book.

**9:30 – 9:45 a.m. College algebra redesign project at MSU**

**Commonwealth**

**\*Julie Lang, Dr. Dora Ahmadi, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology**

Results comparing a pilot College Algebra Redesign project to a traditional course will be presented. The College Algebra Redesign at Morehead State University includes reduced lecture time and expands laboratory time. Through the use of technology, students are actively involved in learning algebra and tracking their own progress. Professors use their expertise in addressing individual needs. Additionally, any differences due to instructors and due to the sex of the student will be presented.

**9:45 – 10:00 a.m. Rowan county school wellness program: tracking and evaluating progress**

**Commonwealth**

***\*Samantha Yocke,\*Megan Clark,\*Joey Wilder,\*Erin Wyles,\*Travis Wright, Mark Deaton, Mentor, Department of Health, Wellness, and Human Performance, College of Science and Technology.***

The purpose of this study is to track/evaluate the process and progress of elementary schools within the local school district, as they implement a wellness policy to match the credentialing of Healthiergeneration.org. MSU students will act as study liaisons to each elementary school in the district. Any policy changes, interventions, or other educational efforts will be monitored throughout the duration of this study. Direct observations, open-ended interviews, and review of current data (student body mass index) will be used to triangulate a chain of evidence for the success of a wellness program. MSU IRB approval is documented and Regional Engagement Grant support is currently under submission review.

**10:00 – 10:15 a.m. Advocacy – a campaign for change**

**Commonwealth**

***\*Laura White, Dr. Ann Rathbun, Mentor, Department of Health, Wellness, and Human Performance, College of Science and Technology***

Advocacy is defined as the act of pleading or arguing, in favor a cause, idea, or policy. It is a way for individuals to plead their support on specific issues that face society. Advocacy is often played out through change subjected toward political policy. During the spring semester of 2010, students in Consumer Health 430 took a trip to Frankfort, Kentucky to participate in Diabetes Day at the Capitol. The objective of this event was to advocate to legislators on Diabetes and gain their support towards Diabetes funding. As both a class and individuals we must learn how advocacy can impact societal change. In order for advocacy to take full route of its course people must participate in a cause they find worthy. As students, we were able to see how advocating for a cause brings great attention and awareness to what you are campaigning for. After participation in this event, the students of Consumer Health took a survey based on advocacy. Advocacy plays a huge role in our lifestyles. From the research based on this day, a proposal was formed on how students feel advocacy can directly affect promotion and overall quality of life. The goal of this presentation is to help individuals learn how greatly advocacy can affect change within society. This research was supported by Health Promotion majors in Consumer Health 430, spring 2010.

**10:15 – 10:30 a.m. Break**

**10:30 – 10:45 a.m. Essential orchestral literature for the classical trombonist**

**Commonwealth**

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

A thorough knowledge of certain orchestral works is very important to the trombonist that is aspiring to play in a professional orchestra. With this research project, Mr. Croushore has studied the most significant works in the orchestral literature for the trombonist, researching various styles, techniques, and musical ideas that are important to offering the most effective and authentic performances of the literature. Mr. Croushore will also examine the various issues associated with the audition process relative to each selected orchestral work, and provide useful ideas to help with these issues. The above issues are addressed utilizing various practice methods, including audio tracks used to accompany preparation of the literature. The summation of the project will be presented live with the excerpts prepared to be performed.

**10:45 – 11:00 a.m.      New concert transcriptions, arrangements, and compositions for brass ensembles**

**Commonwealth**

***\*Kevin M. Callihan, Dr. Stacy Baker, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

This project will focus on creating effective new concert transcriptions and arrangements of works chosen from public domain or with permission of copyright holders as well as new original compositions to be premiered in concert by the Morehead State University Tuba/Euphonium Ensemble, Trombone Choir, and Brass Choir. The challenge in writing for instruments that share the same principles of sound production lies in producing creative ways to change the texture. Building a broader concert repertoire for Tuba/Euphonium Ensemble, Trombone Choir, and Brass Choir through the creation of new transcriptions, arrangements, and original compositions will foster greater interest in the brass ensemble as a viable performance medium. This research was supported by MSU Undergraduate Research Fellowship.

**11:00 – 11:15 a.m.      The study and implementation of the compositional techniques of Charles Ives**

**Commonwealth**

***\*John Douglas Handshoe, Dr. Deborah A. Eastwood, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

Charles Edward Ives, (1874-1954) was an American contemporary composer, known for his often unorthodox and experimental compositional techniques. His Symphony No. 2 for Large Orchestra is interesting in that it combines traditional European compositional techniques and styles, with his more modern and “American” flavors, in addition to borrowing multiple popular tunes, as well as themes from more classical works. Analyzing and transcribing this piece for wind band, provided an understanding of Ives’ compositional technique in combining multiple styles and melodies in one overall work. These techniques were applied in composing an original piece for low brass chamber ensemble, using multiple “borrowed” styles and melodies. This research was supported by an MSU Undergraduate Research/Creative Fellowship.

**11:15 – 11:30 a.m.      The orchestral clarinet from 1750 to present day: A study in its evolution through selected symphonic excerpts**

**Commonwealth**

***\*Kaitlin Mansfield, Lori Baruth, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences***

The Clarinet, invented around 1700, has evolved from being one of the pairs of winds in a wind choir, to a vehicle for solo expression and virtuosic technical display. By tracing the history of the clarinet from its first appearance in the orchestra in the early classical period to present day, researchers and musicians enhance their understanding of the historical evolution of western music and its impact on the orchestra. This fellowship presentation consists of performing twelve excerpts from major symphonies and concertos from the classical, romantic, and twentieth-century eras, and an oral presentation of the evolution of the clarinet beginning with the chalumeau and ending with the seventeen key clarinet used today. This research was supported by MSU Undergraduate Research Fellowship.

# Concurrent Session – Eagle Meeting Room

**9:00 - 9:15 a.m.**            **Education in the American Republic, a view to liberal education and the founding fathers**

**Eagle Meeting**

***\*Blake Bedingfield, Dr. Stephen Lange, Mentor, Department of Government and Regional Analysis, School of Public Affairs, College of Business and Public Affairs***

In recent years, there has been an increasing focus upon character education in the public school system. This raises the question of the purpose of public education and its role in shaping citizens for our democratic republic. In order to address this question and reconsider the foundations of public education, it is essential to consider the thoughts of the founding generation on what public education is to accomplish with regard to forming citizens' character, disseminating essential knowledge for effective political participation, cultivating democratic skills, and other ends. This project surveys the importance of a liberal education and the views of the founders on the purpose and content of public education. This research was supported by a MSU Undergraduate Research Fellowship.

**9:15 - 9:30 a.m.**            **Persistent distress in central Appalachia: a comparative county approach**

**Eagle Meeting**

***Blake Bedingfield, Bonita Fraley, \*Justin May, Trey Rosser, \*Kyle Yarawsky, Dr. Christine McMichael and Dr. Stephen Lange, Mentors, School of Public Affairs, College of Business and Public Affairs***

Since 1960, the communities of eastern Kentucky have comprised the largest contiguous area of perennially distressed counties in Appalachia. A better understanding of the reasons underlying this continuing economic disparity is needed in order to enhance the development and implementation of policies and procedures aimed at creating more economically and socially sustainable communities in this region. In this study, quantitative analysis of primary indicators of economic progress was supplemented with interviews and case studies of five Kentucky counties. Results suggest that a number of factors contribute to economic progress and improved quality of life in those rural communities that have been more successful: collaboration among community leaders, long-term strategic planning, infrastructure development and enhancement, access to higher education, and state and federal aid. Funding support for this project was generously provided by the School of Public Affairs, the Center for Regional Engagement, and the Office of Research and Sponsored Programs.

**9:30 – 9:45 a.m.**            **The Supreme Court and state regulation of wine: Kentucky's response to *granholm v. heald* (2005)**

**Eagle Meeting**

***\*Rebekah Jackson, Dr. William C. Green, Mentor, Department of Government and Regional Analysis, School of Public Affairs, College of Business and Public Affairs***

State regulation of the direct shipment of wine to consumers favors in-state wineries and discriminates against out-of-state wineries. The U.S. Supreme Court in *Granholm v. Heald* (2005) prohibited this discrimination. Our research examined the Kentucky legislative response to *Granholm* and the litigation of three statutory direct shipment restrictions. We found that the federal district court in *Cherry Hill v. Hudgins* upheld the winery gallonage production cap and two case shipment limit, but the federal court of appeals in *Cherry Hill Vineyards v. Lilly* struck down the winery on-site purchase requirement as discriminatory. Kentucky is not alone. We found that other states enacted similar legislation, other federal courts reached different decisions, and, five years after *Granholm*, a non-discriminatory national marketplace for wine does not yet exist.

**9:45 – 10:00 a.m.      Toward a social capital theory of family firm’s competitive behavior**

**Eagle Meeting**

**\*Amy Appelman, Dr. Ahmad Hassan, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs**

There is a growing recognition of family firms’ contribution to the global economy and interest in what they can teach the rest of the business world. Family businesses dominate the economies in most nations in terms of the number of enterprises. A basic understanding of how organizational ownership influences competitive behavior is of paramount importance. Building upon social capital perspective, this study seeks to advance research in family business by delineating the impact of social capital on patterns of competitive actions using existing theories to argue that social capital acts as mechanism for escalating aggressiveness of competitive actions launched. The use of social capital perspective helps research in family firms address calls for developing a better understanding of the concept of familiness and competitive phenomena. This research was supported by MSU Undergraduate Research Fellowship.

**10:00 – 10:15 a.m.      Determinants of College Success: High School GPA and Components of ACT as Predictors**

**Eagle Meeting**

**\*Karolina Tunstig, Dr. S. Ali Ahmadi, Mentor, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs**

The purpose of this study was to identify some of the determinants of college success as indicated by the college graduating Grade Point Average. Using Multiple Regression, this study postulated Students’ Graduating GPA as a function of High School GPA, as well as a function of different components of ACT Test: Math, English, Writing and Science. The study differentiated among students graduating from the different colleges in Morehead State University. The data for this study were acquired from MSU’s Office of Institutional Research and Assessment.

The results of the study, while confirming previous studies that High School GPA is a major determinant of College GPA, indicate that, among different components of ACT, for almost all majors, English is the most important component in predicting College GPA. For some majors, Math played the next most important factor. The Science component indicated no significant role in predicting college GPA.

**10:15 – 10:30 a.m      Break**

**10:30 – 10:45 a.m.      An Empirical Test of Simon Kuznets Curve Applied to Environmental Economics: A Multiple Regression Approach**

**Eagle Meeting**

**\*Amir Ahmadi, Dr. S. Ali Ahmadi, Mentor, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs**

The purpose of this study was to test a theoretical model called the Kuznets Environmental Curve by using the cross-section for over 200 countries in 2006, and employing the technique of Multiple Regression. The Environmental Kuznets Curve (EKC) hypothesizes that a model where emission of wastes is postulated as a function of per capita income for countries, will produce a quadratic inverted U-Shape curve. With some mathematical manipulations, using the data from 2006, this study postulated CO<sub>2</sub> Emissions, for over 200 countries, as a function of a single independent variable, their per capita income, but produced a multiple regression model to test the Kuznet Environmental Curve. The results of the study indicated, the Kuznet Curve, while a theoretically sound model and applicable in some cases, given the available cross-section data, could not be empirically generalized. Other mathematical manipulations to demonstrate the u-shape Curve are suggested and tested.

**10:45 – 11:00 a.m.      Determinants of Premature Death in the State of Kentucky**

**Eagle Meeting**

**\*Michael Fitzner, Dr. S. Ali Ahmadi, Mentor, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs**

The purpose of this study was to investigate some of the causes of premature death due to infectious diseases in the State of Kentucky. Using the Statistical Technique of Multiple Regression, as suggested by reviewed medical literature, this study hypothesized premature death in Kentucky counties, represented by Death from Infectious Diseases, as a function of several factors such as a county's High School Graduation Rate, Per Capita Personal Income, Total Medical Workers, Low Birth Rates, Teen Births and Tooth Loss. The data for this study were acquired from Foundation for a Healthy Kentucky as well as from the Kentucky Health Cabinet.

The results of the study indicated that, for the 119 counties included in the study, High School Graduation Rate had a negative impact and Number of Medical Workers in the county, Teen Birth Weight and Tooth Loss played positive significant roles in the number of premature deaths as represented by death from infectious diseases.

**11:00 – 11:15 a.m.      The role of ACT scores and high school GPA in the college success of non-traditional students**

**Eagle Meeting**

**\*Rachel Beauchamp, Dr. S. Ali Ahmadi, Mentor, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs**

The purpose of this study was to identify some of the determinants of college success of Non-Traditional Students as indicated by the college graduating Grade Point Average. Using Multiple Regression, this study postulated Students' Graduating GPA as a function of High School GPA, different components of ACT Test as well as Dummy Variables indicating the student gender. The data for this study were acquired from MSU's Office of Institutional Research and Assessment.

The results of the study, indicated that while ACT Scores for some components of ACT and High School GPA did play a significant role in the success of the Non-Traditional Students, but as the years since college graduation increased, the role of these factors diminished, though some components like English still play a more significant role.

**11:15 – 11:30 a.m.      Factors contributing to NBA wins: A multiple regression approach**

**Eagle Meeting**

**\*Patrick C. Schwalbach, Dr. S. Ali Ahmadi, Mentor, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs**

The purpose of this study was to determine what factors led to wins in the NBA. When using multiple regression with newer statistics that are coming available, this study hypothesized that some factors were the biggest indicators of a winning team. These factors included Effective Field Goal Shooting Percentage (eFG%) per game, Turnovers by the team per game, Opponent's eFG%, and Opponent's turnovers. The data were acquired from [www.82games.com](http://www.82games.com) and [www.basketball-reference.com](http://www.basketball-reference.com), both of which track these and similar stats for the NBA. The study was done for the most recent years because of how the game has changed and how the rules for the game have changed in the recent years. The study was done for years 2003-2009.

The results of the study confirmed that these factors were major in determining a winning team for the season. Holding your opponent's eFG% lower seems to be the biggest factor in determining a winning record in the NBA.

## Concurrent Session - Riggle Room

**9:00 - 9:15 a.m.            Incidence of bovine viral diarrhea virus-persistent infection in Eastern Kentucky cattle**

**Riggle**

***\*Latissa O’Cull, Dr. Philip Prater and Dr. Troy Wistuba, Mentors, Department of Agricultural Sciences, College of Science and Technology***

Bovine Virus Diarrhea (BVD) is a devastating disease of all cattle. Clinical signs of mucosal erosions and diarrhea have obvious impacts on infected animals, but more devastating are those animals that do not thrive through lower weight gains, increased disease susceptibility, and diminished reproductive performance. Key to the success of preventing this disease is testing, vaccinations and bio-security. The major source of BVD infection is persistently infected animals (PI's). PI's result from cows being exposed to BVDV during pregnancy and the fetal calf becoming infected. Frequently these calves show no signs of illness. They shed the virus in such great numbers that even well-vaccinated animals may become infected. This project sought to determine the infection rate of BVD-PI cattle in Eastern Kentucky cattle. Cattle were sampled by obtaining a single ear notch. Capture antigen-ELISA: BVD-PI testing was used in determining whether cattle were positive or negative for BVD-PI. Overall, no cases of BVD-PI were detected in the Eastern Kentucky farms that were surveyed. Data collected was analyzed for age, farm management scheme, nutrition and vaccination status. Results showed that the majority of the farms had instituted BVD vaccination programs using a killed virus vaccine, and these farms also maintained an appropriate trace mineral program. The most important characteristic of these farms, that helped to reduce or eliminate problems with BVD-PI, was the fact that none of these farms bought cattle from outside sources for replacement purposes. Although no active cases of BVD-PI were detected, this disease still warrants vigilant surveillance. Project supported by an MSU Regional Engagement Grant & Undergraduate Research Fellowship.

**9:15 - 9:30 a.m.            Identification of genetic markers for improvement of fresh pork quality**

**Riggle**

***\*Moriah L. Penick Dr. Rebecca E. Miculinich, Mentor, Department of Agricultural Sciences, College of Science and Technology***

Previous research has determined that meat quality traits can be improved through marker assisted selection in livestock populations. The objective of this project is to investigate the effect of two promising candidate genes for fresh pork quality; Adipocyte determination and differentiation factor-1 (*ADD1*) and pyruvate dehydrogenase E1-alpha subunit (*PDHAI*). Polymerase chain reaction, restriction fragment length polymorphism (PCR-RFLP) procedures and a statistical association analysis to compare genotype effects on economically important quality traits is on-going. Results of the *ADD1* genotype differences for fresh pork quality will be reported for two swine breed populations currently utilized throughout the U.S. and Kentucky. Funding for this project was provided by the MSU Undergraduate Research Fellowship, the MSU Center for Regional Engagement Grant and the Ohio State University Department of Animal Sciences.

**9:30 – 9:45 a.m.            Atomic force microscopy analyses of bacterial cellular structures released using a novel lysis procedure**

**Riggle**

***\*Tiffany Stacy, \*Jacob Jordan, Dr. Douglas Dennis, Mentor, Department of Biology and Chemistry, College of Science and Technology***

A novel lysis procedure has been developed that results in the release of intact subcellular structures that expose inner layers of the cell wall. These structures have been analyzed using high-resolution atomic force microscopy. Structures observed include the outer cell membrane ghost and lysed cell ghosts. In addition, a group of novel structures have also been imaged. These include a spheroplast ghost possessing a curvilinear structure on the surface, a type of cell ghost constricted by helical bands, and a cell ghost that exhibits ~30 nm transmembrane tunnels. These were examined in detail and compared to existing knowledge in the field. Speculations as to the identity of the novel structures will be presented.

**9:45 – 10:00 a.m.      Rho-kinase activity is necessary for alpha-actin podosome formation and maintenance in A7r5 smooth muscle cells**

**Riggle**

***\*William R. Hankinson, \*Josie Maione, Suzette Pike, Dr. Michael E. Fultz, Mentor, Department of Biology and Chemistry, College of Science and Technology***

We have proposed that differential remodeling of the alpha-actin, beta-actin, and myosin cytoskeleton may explain the unique contractile properties exhibited by smooth muscle. However, the mechanism(s) regulating this differential remodeling is not understood. Arrangements of cytoskeletal components were examined before and after inhibition of Rho-kinase. Results suggest that Rho-kinase may selectively regulate the formation/maintenance of the alpha-actin podosomes with minimal effect on the beta-actin component of the cytoskeleton. Also, Rho-kinase activity appears to be necessary for the maintenance of alpha-actin filaments in the resting cell. Our results suggest that the inhibition of Rho-kinase promotes dissolution of alpha-actin filaments and prevents remodeling of the alpha-actin cytoskeleton. Therefore Rho-kinase may regulate smooth muscle contractility. This project was supported by MSU Undergraduate Research Fellowship and NIH-INBRE grant #5P20RR16481-09.

**10:00 – 10:15 a.m.      Risk for DNA damage via a copper and Bisphenol A reaction**

**Riggle**

***\*Logan W. Murphy, Dr. David Saxon, Mentor, Department of Biology and Chemistry, College of Science and Technology***

Bisphenol A (BPA), an endocrine disrupting chemical, used in container and pipe linings is linked with cancer risk. Reactive oxygen species (ROS) formed by interaction of BPA with copper, a chromatin component, could damage DNA. Cu(II) reduction to Cu(I) by BPA was observed using a Cu(I) chelator, and indicates an electron donor capacity for BPA with the potential to utilize O<sub>2</sub> and form ROS. A ROS generating system of H<sub>2</sub>O<sub>2</sub> and Cu(II) was used to investigate the effect of BPA on DNA. DNA incubation in the ROS system damaged DNA, but neither Cu(II) nor H<sub>2</sub>O<sub>2</sub> alone produced damage, and BPA (without O<sub>2</sub>) did not alter the H<sub>2</sub>O<sub>2</sub> + Cu(II) effects. Initial experiments of DNA incubation with Cu(II), BPA and O<sub>2</sub> have not produce detectable damage. Supported by UG Fellowship.

**10:15 – 10:30 a.m      Break**

**10:30 – 10:45 a.m.      The impact of plot complexity on plant species diversity at Spaws Creek in Eastern Kentucky**

**Riggle**

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

The purpose of this study is to determine the relation of plot complexity to plant species diversity at Spaws Creek in Menifee County, Kentucky. Data was collected from thirty permanent 20 X 10 meter plots equally distributed on the north and south facing slopes at creek-side, mid-slope, and cliff-side elevations. A protocol was developed to accurately record and sketch the follow data using gridline plots: tree species and trunk diameter data, all rocks larger than one meter in at least one horizontal direction, snags, and the length and circumference of fallen logs. Research was funded in part by grants from the Kentucky Academy of Science and Morehead State University.

**10:45 – 11:00 a.m. Bryophyte biodiversity analysis of Spaws Creek Gorge, Menifee County, Kentucky**

**Riggle**

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

The purpose of this study was to analyze the biodiversity of bryophytes as part of an even broader study dealing with similarity of biodiversity patterns between different plant groups of a specific geographical region. Bryophyte samples were collected from the slopes of Spaws Creek Gorge, Menifee County, Kentucky, from a series of sub-random permanent plots of 10x20m which were split into sub-plots of 1x1m and 3x3m in the north-east and south-west corners for biodiversity analysis at different scales. The bryophyte specimens were identified with compound and dissecting microscopes with help from identification keys from various texts, using morphological features and growth patterns to discriminate species. Funding was provided by a grant from the Kentucky Academy of Science and an Undergraduate Research Fellowship from MSU.

**11:00 – 11:15 a.m. Tree ring and forest disturbance analysis of Spaws Creek Gorge, Menifee County, Kentucky**

**Riggle**

***\*Sam Kemmer Jr, Dr. Allen C. Risk, Mentor, Department of Biology and Chemistry, College of Science and Technology***

Dendrochronology is defined as the study of the chronological sequence of annual growth rings in trees. These rings can be analyzed by removing a “core” from the tree. After closely examining a core, researchers are able to determine “release events”. Release events are characterized by an increase in width in annual rings, signifying a period of enhanced growth due to a number of natural or unnatural disturbances. Trees being sampled are in permanent 10x20m plots located in Spaws Creek Gorge, Menifee County, Kentucky. Plots were established in a sub-random fashion encompassing north and south facing aspects, as well as creek, mid-slope, and cliff line elevations. Research is supported by an Undergraduate Research Fellowship and an internal grant from Morehead State University.

**11:15 – 11:30 a.m. Tree ring analysis of Spaws Creek Gorge, Menifee County, Kentucky**

**Riggle**

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

The science of dendrochronology uses tree ring analysis to study the chronological sequence of annual growth in trees. The samples taken from the trees, referred to as “cores”, allow researchers to study the silent history of the individual tree or, collectively, the forest. The purpose of this study was to utilize tree boring to determine the age structure of the canopy, sub-canopy, and under story in regards to both aspect and elevation within Spaws Creek Gorge, Menifee County, Kentucky. Trees were sampled based on diameter at breast height in a series of sub-random plots at creek, mid-slope, and cliff elevations on both the north and south facing slopes. The study was funded through the Kentucky Academy of Science and Morehead State University.

**P. 1. Attitudes toward exploitation in function of normative morality and gender attitudes****Crager****\*Amy Kiser, Dr. Karen Bardsely, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences, and Dr. Sean P. Reilley, Department of Psychology, College of Science and Technology**

There are many theories of morality and ethics. This study focuses on the definition of morality as a normative code of conduct wherein three normative ethics perspectives were of interest: consequentialism, virtue ethics, and deontological (non-consequentialism). The main goals of the present study were: to evaluate how people view different forms of exploitation in function of normative ethics perspectives and gender role attributes. In a sample of 68 college students, it was found that gender role attributes as evaluated by the Personal Attributes Questionnaire had no significant impact on normative ethics or exploitation attitudes and ratings. However, a significant effect for normative ethics perspectives did emerge from analyses. Consequentialists found reality television and use of animals as food as significantly more immoral, while deontologists rated pornography as more immoral than other ethics perspectives.

**P. 2. Eastern Kentucky Arts Project****Crager****\*Kendrick Holbrook, Dr. Joy Gritton, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

The Eastern Kentucky Arts Project (EKAP) is in its fourth year of identifying and documenting arts resources in Kentucky's Appalachian counties. Since first introduced at the 2008 Appalachian Studies Association conference, the project's website has been launched at [www.ekap.org](http://www.ekap.org) with 34 (and counting) documented counties. This poster will provide a progress update on our most recent efforts to "engage community" with EKAP, including building relationships with residents in each county, establishing a public awareness campaign, and developing our on-going oral histories outreach.

**P. 3. Developing Form Using zBrush and Rapid Prototyping****Crager****\*Abigail Brading, Kira Campbell, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences**

The purpose of this project has been to determine the qualitative differences between hand-sculpting and sculpting through a computer program. We chose to work with zBrush, a 3-dimensional imaging program that allows you to work in a way that is closely analogous to hand-building in clay. The form we chose to work with, a gear, was built using two methods: 1. Slabs of clay. 2. Slip-casting using a plaster mold. The final gear was built using the zBrush program. When the project is complete we will analyze if the computer-aided gear has any qualitative and aesthetic differences from the hand-built gears. This project was made possible by funding from the Undergraduate Fellowship Program and the Department of Art & Design.

**P. 4. The altered anatomies project: The moving body in animation**

**Crager** \**Karri Smith, Bobby Campbell, Mentor, Department of Art and Design, Caudill College of Arts, Humanities, and Social Sciences*

This project has facilitated student work in the creative production of a professional level animation project. The student and professor developed hand-drawn, frame-by-frame animated sequences that were extended with the special capabilities of Adobe Photoshop, Adobe Illustrator, Adobe Flash and Adobe Premiere software. These sequences focused primarily on creative sequences of figurative movement as well as storytelling with animated subjects. In the future, selected short sequences will be submitted for entry in animation competitions. The project has extended the student's brainstorming, drawing, sequencing and animating abilities and broadened her professional opportunities by providing focused experience through a competitive studio project. This project has been supported by the MSU Undergraduate Research Fellowship program.

**P. 5. Social media marketing: a student recruitment tool for MSU**

**Crager** \**Allison Stanley, Tony Glover, Mentor, Department of Communication, Media and Leadership Studies, Caudill College of Arts, Humanities, and Social Sciences*

This project shows how social media can be a successful recruiting tool for Morehead State University. Social-media marketing is an advertising method that encourages user participation and dialogue. Social networking currently accounts for 11 percent of the total time spent online in the U.S. We targeted MSU's service region, using Facebook and Twitter, to connect and create a dialog with high-school juniors and seniors. As a result of this campaign, the incoming number of students who consider MSU or the Department of Communication, Media and Leadership Studies as their major or minor has measurably increased. To continue expanding the number of students, a social-media plan must exist and become a part of our standard recruiting efforts.

**P. 6. "The distorting mirror of the camcorder": the self and media in the works of Stephen Wright**

**Crager** \**Dakota Thornberry, Dr. Layne Neeper, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences*

Through the course of his four novels, Stephen Wright posits many ideas in regard to the saturation of mass media in modern life. Though he touches upon some ideas that have been explored by previous postmodern authors like Don DeLillo, Wright offers a refinement of such ideas in that he suggests the possibility of mass media acting not simply as an influence on the personality of individuals, but as an actual replacement for personality and cognitive processes. This can be seen particularly strongly in the novels *Meditations in Green* and *Going Native*, though such a trend can be observed in Wright's other works as well.

**P. 7. Pre-service curriculum alignment and instructional support for Kentucky English teachers**

**Crager** \**Mitchell Wilson, Kathryn Mincey, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences*

This ongoing project began three years ago with a statewide survey of Kentucky English teachers to determine the literary texts most commonly taught in grades 8-12. Results are posted at <http://www.moreheadstate.edu/eec/>. That research has enabled Undergraduate Research Fellows to develop and post resources for teachers at the online MSU English Education Center and, with the support of a Regional Engagement Grant, to upgrade materials in the resource center on campus for teachers. The fellows have also assisted in presenting research-based professional development workshops at conferences for teachers and locally for teacher-candidates. The project has been supported by both an IRAPP Regional Engagement Grant and the Undergraduate Research Fellowship program and has been presented at the Kentucky Council of Teachers of English Conference.

**P. 8. Language learning through experimental cultural, residential, and linguistic exploration**

**Crager** \**Holly Back, Dr. Philip E. Krummrich, Mentor, Department of English, Caudill College of Arts, Humanities, and Social Sciences*

Students have participated in an experimental and innovative language program designed to enhance the way foreign languages are learned. The program consists of students being exposed to language learning outside of a classroom setting. Most students live on-campus in Fields Hall, part of which is designated as the Foreign Language Residence Area. Students are encouraged to speak in the target language. Students go to a weekly two hour class led by a facilitator to enrich their language learning experience. They participate in activities such as cooking Latin cuisine, watching Spanish speaking films, reviewing linguistic principles, and collaborating with faculty on cultural presentations. The program is designed to offer an alternative avenue of learning to traditional methods and be hands-on. This project was supported by MSU Undergraduate Fellowship.

**P. 9. Children of the killing fields: a story of survival during the khmer rouge**

**Crager** \**Clayton Akers, Sarah Bates, Justin Collins, Nikki Hoback, Jordan Maynard, Andrew Wilhoite, History 377, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences*

In the 1970s the Khmer Rouge, led by Pol Pot, overthrew Cambodia's government. Many Cambodian's were forced into labor camps known as "The Killing Fields." This genocide differed from others because of its targeted and total manipulation of children. While parents were persecuted, many children were brainwashed and trained as killing machines. Weaker children harvested crops and worked to fuel the civil-war machine. These Children were forced to become hyper-nationalized citizens of a regime that persecuted their families. The stories of Chanrithy Him and Loung Ung, two survivors of the Khmer rouge, illustrate the pervasiveness of this genocide. Their reflections serve as a coping mechanism for them and as a memorial for fellow survivors.

**P. 10. Home foreclosure defense: an undergraduate partnership with Legal Aid of the Bluegrass**

**Crager** \**Rebekah Jackson, Kelly Collinsworth, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences*

Skyrocketing home foreclosure rates are a significant burden on understaffed Legal Aid offices that work to ameliorate the damage done by predatory lending, high unemployment and medical costs, and lack of consumer credit. This study's purpose was to determine the need and methods for implementation of a foreclosure defense education program for individuals facing foreclosure. Similar programs have been offered through other Legal Aid offices across the state to provide families with literature and a forum to answer foreclosure questions. Additionally, this study examined the feasibility of a clinical curriculum to allow legal studies students at MSU the opportunity to assist Legal Aid attorneys in foreclosure defense. This research was funded by a Regional Engagement fellowship.

**P. 11. The Importance of Importance**

**Crager** \**Jacob Kincaid, Dr. Wendell O'Brien, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences*

Despite sinking so much time and thought into philosophy, there seems to be a problem that few philosophers have really tackled; importance. Philosophers philosophize without considering if philosophy is really important, indeed, without considering if they can know such things, or if importance is even something to consider. I plan to write on the subject of importance. In addition to this project I have submitted an abstract for Spongebob Squarepants and Philosophy and plan to submit another for Halo and Philosophy, both published by Opencourt books. These projects are all being mentored by Dr O'Brien as part of my Undergraduate Fellowship.

**P. 12. Strength of spirit: The evolution of women in eastern Kentucky Christian Churches, 1909-1960**

**Crager** \*Joshua Ingram, Dr. Alana Cain Scott, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

In the summer of 1801, The Great Revival held at Cane Ridge, Kentucky laid foundation for a new church that would “return to the ancient order of things,” acknowledging Christ as head of the church and the Bible sole authority. Women were banned from the pulpit and leadership positions. Over the next 100 years women’s role in the church changed, resulting with women being ordained as ministers. How did this transformation occur? This thesis will address the advancement of women through a study of Christian Churches in four Kentucky counties, including Bath, Montgomery, Fleming and Mason. Sources used include foundational secondary literature and the examination of church records and interviews. This research was made possible through funding provided by the Undergraduate Research Fellowship Program.

**P. 13. South Korea’s Vision of the Vietnam War HIST 377 (20<sup>th</sup> Century Asian Wars)**

**Crager** Nikki Taylor, Sarah Ison, Josh Ingram, \*Tim Engle, Mike Kearns, Adella Mink, Alisha Lawson, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

Vietnam remains America’s most controversial war. In an attempt to achieve victory, the United States approached the Republic of South Korea for troops. In exchange for financial assistance, South Korea agreed to provide combat troops beginning in 1964 until the Americans withdrawal. Receiving an estimated \$100 million, South Korea was able to rebuild and industrialize; gaining a much needed sense of financial stability and recognition. The impact of pressure to contain communism, partnered with alleged atrocities committed by ROK, forever changed the socio-cultural consciousness of South Korea.

**P. 14. Atomic bombing of Hiroshima from the Japanese perspective**

**Crager** HIS 377 (20<sup>th</sup> Century Asian Wars), \*Derrick Duff, \*Jason Griffith, \*Kyle Hager, \*Amanda Hogge, \*Jessica Ratliff, \*Casey Simpson, \*Chris Wiseman, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

The atomic bombing of Hiroshima resulted in more than just rubble and high casualties. The bomb’s impact permeated Japan’s social structure and the effects remain noticeable today. In addition to the physical and environmental consequences, the Japanese have been victims of mass misinformation and censorship concerning the bomb’s effects, as well as of social discrimination tied to those directly exposed to the bomb. Whereas our Western perspective has often labeled the atomic bomb a necessary evil, the pervasiveness of the bomb’s impact overshadows its utility, forcing us to reconsider the wide-reaching implications of such a destructive weapon.

**P. 15. True comfort frame by frame**

**Crager** HIS 377 (20<sup>th</sup> Century Asian Wars), Matthew Reed, Amy Tobin, Steven Utter, \*Josh Newberry, \*Tyler Richardson, \*Daniel Barker, Tabitha Stamper, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

During the Asian and Pacific War, the Japanese military forced approximately 200,000 unmarried, Asian women into military brothels. Named comfort women, they faced inhuman and horrific circumstances while they were imprisoned by the Japanese to serve soldiers, but their will to survive never ceased. Their survival continued even as Japanese officials refused to accept responsibility for these crimes against humanity. The story of the comfort women however, is one of triumph in the face of extreme adversity. They fought hard to regain their dignity by exposing the truths the Japanese covered up for years.

**P. 16. Steve Hamilton documentary**

**Crager** \*Sarah Ison, \*Jessica Ratliff, \*Amanda Hogge, \*Kyle Hager, \*Bryan Maynard, \*Anthony Fitch, Independent Study with Dr. John Hennen, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

Steve Hamilton was an accomplished athlete hailing from Morehead State University. As a professional baseball and basketball player, Steve always remained humble and connected to his alma mater, even through the fame and acquired position of Player Representative. This connection eventually guided him back to Morehead where he became Athletic Director. This documentary was created to commemorate the life and many achievements of Steve Hamilton, a major role player in the baseball union as well as a local, family man of Morehead, Kentucky.

**P. 17. The Rape of Nanking**

**Crager** \*Jarrod Portwood, Michael Hanak, Braxton Smith, Rachel Heinz, Margo Heinz, Billy Ousely, Dr. John Ernst, Mentor, Department of History, Philosophy, Religion, and Legal Studies, Caudill College of Arts, Humanities, and Social Sciences

The atrocities committed by the Japanese inside Nanking in 1937 forever changed the city, the soldiers, the victims, and the relations between China and Japan. Japanese officials altered their opinion on the events at Nanking repeatedly and still will not admit to the full extent of the damage. The Nanking safety zone was established in the city to protect citizens from the invading forces and was headed by a German Nazi, John Rabe. This act saved 300,000 Chinese and was responsible for insuring that there were survivors who could share their testimonies. Our research poster examines the Nanking attack from all of these perspectives to gain a more comprehensive understanding of the tragedy.

**P. 18. Turning swords into ploughshares**

**Crager** \* Lauren Decker, Dr. John Secor, Mentor, International and Interdisciplinary Studies, Caudill College of Arts, Humanities, and Social Sciences

Our research into genocides and civil wars over the last 30 years in Africa has raised questions about survival and reconciliation of peoples and clans who have been driven to the brink of exterminating each other. In our poster we will explore art as an expression of the post-violent grieving process in Africa. We will examine the notion of the artist being able to visually communicate the community's desire for peace through powerful works of art such as literally transforming the guns of war into sculptures. For artists and cultures alike, art serves to heal and repair the damaged societies of a troubled continent, and to productively channel the energy of a negative situation into a meaningful creation that speaks for a new beginning.

**P. 19. The correlation of music programs in Kentucky elementary schools and state testing results**

**Crager** \*Caitlin Pillow, Dr. June Grice, Mentor, Department of Music, Theatre, and Dance, Caudill College of Arts, Humanities, and Social Sciences

This research involves the correlation of music education programs in Kentucky elementary schools and state testing results within those schools. The research will determine if there is a positive, or negative, effect on the results of the state standardized test scores in schools having a music program versus those schools that do not have a music program. The research includes analyzing the report cards of various schools and determining if the scores on the school report cards are higher, or lower, when schools have qualified music teachers with specific times in the school day set aside for music class. This research was supported by a UG Fellowship.

**P. 20. Protecting communities in Eastern Kentucky: what influences participation in sex offender treatment?**

**Crager** *Matthew R. Laurin, Department of Sociology, Social Work, and Criminology, Caudill College of Arts, Humanities, and Social Sciences, Dr. Paul D. Steele, Mentor, Institute for Regional Analysis and Public Policy, School of Public Affairs, College of Business and Public Affairs*

Kentucky has adopted the Containment Model for managing sex offenders in the community. This model mandates close supervision by specialized probation/parole officers and the use of polygraphs to monitor the behaviors of sex offenders. A further condition is their participation in sex offender treatment, usually lasting from 18 to 24 months. Cognitive-behavioral sex offender treatment such as that adopted by the Kentucky Department of Corrections has been found to significantly reduce recidivism, but participation and success in treatment varies dramatically between sex offenders. In this study I analyze personal, social network, and community influences on multiple measures of sex offender treatment participation, relying on information collected concerning 242 sex offenders residing in rural Eastern Kentucky. These findings are used to suggest refinement of the Commonwealth's sex offender management policy.

**P. 21. Toward a social capital theory of family firm's competitive behavior**

**Crager** *\*Amy Appelman, Dr. Ahmad Hassan, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

There is a growing recognition of family firms' contribution to the global economy and interest in what they can teach the rest of the business world. Family businesses dominate the economies in most nations in terms of the number of enterprises. A basic understanding of how organizational ownership influences competitive behavior is of paramount importance. Building upon social capital perspective, this study seeks to advance research in family business by delineating the impact of social capital on patterns of competitive actions using existing theories to argue that social capital acts as mechanism for escalating aggressiveness of competitive actions launched. The use of social capital perspective helps research in family firms address calls for developing a better understanding of the concept of familiness and competitive phenomena. This research was supported by MSU Undergraduate Research Fellowship.

**P. 22. Persistent distress in central Appalachia: a comparative county approach**

**Crager** *Blake Bedingfield, Bonita Fraley, \*Justin May, Trey Rosser, \*Kyle Yarawsky, Dr. Christine McMichael and Dr. Stephen Lange, Mentors, School of Public Affairs, College of Business and Public Affairs*

Since 1960, the communities of eastern Kentucky have comprised the largest contiguous area of perennially distressed counties in Appalachia. A better understanding of the reasons underlying this continuing economic disparity is needed in order to enhance the development and implementation of policies and procedures aimed at creating more economically and socially sustainable communities in this region. In this study, quantitative analysis of primary indicators of economic progress was supplemented with interviews and case studies of five Kentucky counties. Results suggest that a number of factors contribute to economic progress and improved quality of life in those rural communities that have been more successful: collaboration among community leaders, long-term strategic planning, infrastructure development and enhancement, access to higher education, and state and federal aid. Funding support for this project was generously provided by the School of Public Affairs, the Center for Regional Engagement, and the Office of Research and Sponsored Programs.

**P. 23. Household organic gardening project**

**Crager** \**Ezra Dike, Dr. Kristi King and Dr. Carol Wymer, Mentors, Center for Regional Engagement, College of Business and Public Affairs*

The Household Organic Gardening Project is a collaboration between Morehead State University (two academic departments, three student organizations, and a fraternity), Morehead community groups, and the University of Louisville. This partnership will establish fifty, small, raised bed organic gardens at residences throughout Morehead. Low income families with young children and senior citizens will be targeted for participation. This project seeks to remove barriers which traditionally prevent garden development (lack of knowledge and the cost and labor needed to establish a garden) by providing initial, and ongoing, assistance to participants throughout one growing season. The effects of this project will be determined through surveys and interviews assessing participant knowledge, attitudes, and behaviors regarding vegetable consumption and gardening. This project is funded by the Center for Regional Engagement.

**P. 24. The city of Morehead: zoning land parcels throughout the city limits of Morehead**

**Crager** \**Quentin Jay Morgan, Kevin Calhoun (GIS Coordinator), Mentor, Institute for Regional Analysis and Public Policy, School of Public Affairs, College of Business and Public Affairs*

Previously, members of the GIS committee of the city of Morehead have yet to develop a digital map for the land parcels and their zones for Morehead's city limits. With the guidance and help of Kevin Calhoun, we have developed a digital map of the city which incorporates each land parcel being represented by a specific color designation. Each color represents a particular zone. Using GIS technology we have completely mapped every parcel within the city limits, placing each parcel in a specific zone.

**P. 25. Business curriculum exposure and moral imagination**

**Crager** \**Sara Bradley, Dr. Brian Whitaker, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

Given the plethora of recent corporate scandals, critics have argued that exposure to business curriculum negatively impacts students' moral decision-making processes. To address these concerns, this study examined the relationships between business curriculum exposure, moral imagination, and several types of ethical decision making. Data were obtained from a representative sample of 92 employed business students from freshman to the MBA level. Results indicate that business curriculum exposure positively influence moral imagination even after controlling for important demographic, individual difference, and contextual variables. However, we found no significant effect for business curriculum exposure on ethical decision-making. Results point to the need to further examine links between ethics pedagogy, students' moral development, and ethical decision-making. This research was supported by the MSU Undergraduate Research Fellowship program.

**P. 26. Perceptions of students, faculty, and administrators about pregame tailgate parties at a Kentucky regional university**

**Crager** \**Stephanie Teater, Dr. Steve Chen and Dr. Brian Whitaker, Mentors, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

This study examined the motives, interest, and perceptions of 343 respondents (235 students, 88 faculty, and 20 administrators) with regard to pre-game tailgate parties. Three broad areas of interest were identified: (1) the primary reasons for participation in tailgating; (2) the potential problems and risks related to hosting a tailgate; and (3) recommendations for operating a safe tailgate party. Our results indicated the respondents were in favor of hosting tailgating events primarily due to the events' social and entertainment values. However, differences in the need of alcohol control, benefits of the tailgating events, and requirements for the regulating policies were found based on different demographic variables. Practical strategies and concerns for developing tailgating events were further discussed.

**P. 27. True economic impact of a regional NCAA Division-I university's fall sport teams**

**Crager** *Lindsay Stefanini, Spencer Vanover, Ryan Smart, Kaitlin Parson, Cameron Armstrong, Timothy Crump, William Salazar and Dr. Steve Chen, Mentors, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

In this study, the researchers estimated the actual economic impact brought to the community by the fall sport teams of a regional state institution in Kentucky. The surveyed 172 visiting participants were randomly selected from five football ( $n = 72$ ), 11 soccer ( $n = 56$ ), and 14 volleyball ( $n = 44$ ) games during the fall season of 2009. The results included average attendance of visitors and local fans, the participants' total expense for attending the athletic events and project economic impact based on that expenditure. Apparently, the economic impact generated by the institution's fall sport teams was relatively small as compared to the data of past research. This study further illustrated how the result of an economic impact study could be easily manipulated and inflated.

**P. 28. Preparation for an international sport event: The promotional strategies of 2009 Kaohsiung World Games**

**Crager** *\*Ashley McNabb, Dr. Steve Chen, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

This study presented administrative and marketing-related information on Kaohsiung City's preparation for the 2009 World Games. The presented information was allocated through an extensive literature review on secondary sources, personal interviews, and observations from fall of 2008 to summer of 2009. Promotional strategies and activities, projected financial and sales data, reports on constructions, and issues and challenges related to the Games were further analyzed. The study further discussed the "not-for-profit" approach that was practiced by many East Asian Countries to gain international recognition and promote patriotism while hosting a major sport event.

**P. 29. Healthcare and social media: two-way communication**

**Crager** *\*Brittany Hackworth, Dr. Michelle Kunz, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

This undergraduate fellowship research project focuses in on the use of social media networking in the healthcare industry. Tips for successful implementation of social media applications in healthcare marketing strategies were discovered during the study. To determine these strategies, current uses of popular social network applications on Facebook, Twitter, YouTube and other healthcare-specific forums were observed and analyzed. Possibilities for future innovations and applications of media in the marketing mix by healthcare industry members were hypothesized. With more than 60 million Americans using the features of "health 2.0" resources, such as the use of the above-listed social networks, this study is extremely informative and relevant to the healthcare industry and marketers of today.

**P. 30. Delivering holiday cheer with social media networks**

**Crager** *\*Brittany Hackworth, Dr. Michelle Kunz, Mentor, Department of Management and Marketing, School of Business Administration, College of Business and Public Affairs*

This undergraduate fellowship research project examines the popular use of social media marketing by top retailers during the fall of 2009. Eighteen top-rated retailers (including Amazon.com, Macy's, Target, Wal-Mart and others) and five social media networks (Facebook, MySpace, Twitter, YouTube and Kaboodle) were identified for this study. Data were collected weekly from September through the first week of January 2010 to determine the level of participation by the retailers on each of the social media networks. The number of "subscribers" to each retailer's social media platform(s) were tracked for the eighteen weeks reviewed. Retailer's uses of the applications provided by these social media networks were also observed identified. Significant changes were found across retailers, and across the different social media networks.

**P. 31. The economics of local entertainment: a case study for bingo**

**Crager** \**Erica Belmont, Dr. Janet Ratliff, Mentor, Economic Education Center, Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs*

The case study examines the inflows and outflows of cash at a local bingo hall. As a result, this case study will provide a better understanding of the role bingo plays within a community for recreation and community support for other types of youth activities. It will highlight the importance of the financial outlet that charitable gaming serves in the lives of many individuals throughout our state. Descriptive statistics will establish a basic demographic profile of players to better understand who plays bingo, why they play, and what factors might contribute to playing the game. This research study was supported by a MSU Undergraduate Research Fellowship.

**P. 32. Mathematica software as a powerful tool in teaching and studying concepts in economics**

**Crager** \**Amir Ahmadi, Dr. Thomas Creahan, Mentor, Department of Accounting, Economics & Finance, School of Business Administration, College of Business and Public Affairs*

We are constructing student-friendly Mathematica notebooks in order to provide academic institutions with a powerful educational resource. With these notebooks, students measuring or demonstrating the relations of different economic variables will be able to manipulate the values of those variables and instantaneously view the impact of those changes in shape of their graphs. Examples include manipulations of the numerical values pertaining to relation between the Production Function and the Cost Function. With such demonstrations, we feel that students will be able to greatly enhance their understanding of economics

**P. 33. "Each one, teach one": a compendium of Kentucky literature**

**Crager** \**Heather Flynn, Dr. Martha Miller Decker, Mentor, Department of Early Childhood, Elementary and Special Education, College of Education*

In this research, best practice and procedures in adult literacy education are examined, rooted in the legacy of Cora Wilson Stewart and the "The Moonlight Schools" Movement (1911-33). Evidence discovered in current Kentucky literature--*New Books for New Readers*--provide a similar approach as Stewart's *Country Life Reader*, etc., reading materials appropriate to the interests of adult learners. Current brain science points to efficacy of learning strategies which cognitively relate to concepts already familiar to learners. The goal of the research is continuing Stewart's legacy at MSU through developing a "Compendium of Kentucky Literature," a bibliography of suggested current literature available for adult learners, which may be used by university students, as tutors in the community. This research is supported by the Regional Engagement Program.

**P. 34. Embedding instruction to teach pre-kindergarten standards to children with significant disabilities within inclusive preschool classrooms**

**Crager** \**Tiffany Smith, Dr. Sarah R. Hawkins, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education*

This poster will share the results of a series of single subject studies that assessed the effects of a linked system on the attainment of pre-kindergarten standards by children with significant disabilities. Teachers in inclusive public preschool classrooms implemented authentic assessment strategies selected individualized objectives, embedded objectives in classroom activities, and monitored children's progress. The results show that: a) teachers can reliably teach children with significant disabilities within inclusive classroom activities and b) the children can attain pre-kindergarten skills when: a) authentic assessment strategies are employed; b) effective individualized plans are developed; c) embedding consistently occurs; and d) instruction is monitored. Funding for this project is supported by an Undergraduate Fellowship, and Office of Regional Engagement.

**P. 35. Women in higher education: challenges, triumphs, and steel ceilings**

**Crager**

**\*Brianna L. Jones, \*Nikki Murphy, Dr. Lesia Lennex, Mentor, Department of Education, Middle and Secondary Education, College of Education**

The present study examines women at the level of associate and full professor at a State University. From the available pools of female faculty (N=33 associate; N=11 full) ten individuals were randomly selected from each for personal interviews. Interviews were completed with eight associate and eight full professors. Through initial qualitative analysis we have seen two recurrent themes: (1) There is a positive inclination toward promotion mentoring among full professors for their own field of expertise, and (2) there is a lack of perceived departmental support in scholarly productivity at the associate professor level. While more examination of the interview transcripts is pending, we hope to do the following: (1) Determine some reasons that female associate professors do not attempt full promotion, (2) develop a mentoring plan to encourage success toward full professorship among female associate professors, and (3) an examination of the faculty evaluation process that could be more encouraging of those attempting promotion to full professor.

**P. 36. Conducting a transition fair for individuals with disabilities: A service learning project**

**Crager**

**EDSP 372 Transition to Adult Life, Students: Leanna Bloomfield, Kaite Cline, Lindsay Cope, Teresa Couch, \*Deidre Crockett, John Duggins, \*Megan Harp, Brittany Herrera, Michelle Hummel, Emma Keough, \*Tracy Lair, Stacy Liles, Corey Martin, Karen Roberts, \*Leslie Walker, Cassie Wilson, Dr. Sarah R. Hawkins, Mentor, Department of Early Childhood, Elementary, and Special Education, College of Education**

This poster will share the results of a Transition Fair that was hosted by Morehead State University students enrolled in the special education class EDSP 372, Transition to Adult Life. The MSU students conducted the Transition Fair for individuals with disabilities, their families, and classroom teachers. The steps of planning and conducting the Transition Fair will be shared, in addition to evaluation survey data that was administered to the students and participants of the Transition Fair. The Transition Fair was supported by a Service-Learning Course Mini Grant that was funded through Learn and Serve America-Higher Education, which is a program of the Corporation for National and Community Service.

**P. 37. A cross-cultural comparison of special education in the United States and Costa Rica**

**Crager**

**\*Kollette Pemberton, Dr. James A. Knoll, Mentor, Department of Early Childhood, Elementary and Special Education, College of Education**

During a semester in Costa Rica the difference and similarities between special education policies and practices in that country and the United States were examined. This analysis was conducted through extensive observation in a special education setting and in-depth interviews with parents, teachers, administrators, a special education consultant, and a university student with a disability. An initial summary of policies and practices in Costa Rica was prepared and reviewed by a school director to assure accuracy in interpretation. Subsequently field notes were reviewed and a series of recurring themes identified as organizing framework for this report. These themes include: demography, history, laws, practices, family, and culture. A principal finding suggests that conclusions about practices must be informed by an understanding of the local culture.

**P. 38. Dancing words: Hope for dyslexics**

**Crager**

***Brittany Herrera, Kimberely F. Nettleton and Dr. Sara J. Lindsey, Mentors, Department of Early Childhood, Elementary, and Special Education and Department of Middle Grades and Secondary Education, College of Education***

This project concerns dyslexia and its effects on students academically. A Kentucky veterinarian developed RAD prisms as a solution to dyslexia. Researchers agree that there is no cure for dyslexia. However, there are ways to accommodate those with dyslexia. In this study, elementary and middle grade students used RAD prisms, and reading progress was noted. Assessments were given regularly and results recorded. The difference between beginning and end reading scores were calculated and a Mann-Whitney U test used which showed there was a significant difference in reading gain ( $p=.05$ ) between the group of students who wore the lenses ( $M = 53.65$ ), and those who qualified but did not ( $M = 37.26$ ). The researchers acknowledge the support of the Center for Regional Engagement at MSU.

**P. 39. What factors may impact national board certification among teachers in eastern schools?**

**Crager**

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

The National Board for Professional Teaching Standards (NBPTS) is a non-profit, nongovernmental organization established in 1987 to develop national teaching standards. Currently, over 82,000 teachers hold National Board Certification, with 1,829 employed in Kentucky public and private schools (NBPTS, 2009b). The Kentucky General Assembly mandated that by 2020, every school in the state must employ one NBCT (KRS 161 § 131, 2000). This project investigates the factors that may have an impact on successful completion of National Board certification among teachers from districts in the Morehead State University service region. This information will be used by the 21<sup>st</sup> Century Education Enterprise, in partnership with the Kentucky Education Association, to create appropriate support systems for teachers pursuing certification.

**P. 40. What makes a techno teacher?**

**Crager**

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

In order to create an internationally competitive workforce, students must be virtually literate (National Science Foundation, 2007). However, the most important factor in whether or not technology is integrated into the classroom may be a teacher's willingness and ability to utilize this powerful tool as well as continue to acquire new skills in technology. This study focused on the indicators that may predict a teacher's willingness and ability to utilize technology in instruction. Data were collected through surveys among 101 K-12 public school teachers from Boyd, Breathitt, Elliott, Floyd, Jackson Independent, Jackson, Knott, Menifee, and Lawrence County School districts, recipients of grants from the DataSeam Initiative, a not for profit company dedicated to advancing research and promoting education to support economic growth throughout the Commonwealth.

**P. 41. The space movie project: digital movie making for innovative, real world learning**

**Crager**

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

Science and technology are two critical areas of need documented in Eastern Kentucky High Schools. This project proposes to increase (1.) the skill and knowledge of high school teachers and students in the area of digital technology, primarily movie making and digital models, as it relates to NASA missions, (2.) the use of NASA online resources in the classroom, (3.) the number of female students pursuing careers in science, technology, engineering and math (STEM) related fields, (4.) the integration of student-led, project based learning in daily science instruction. The purpose of this study was to measure the extent to which the goals mentioned above have been met through movie scoring rubric analysis and student/teacher surveys. This information will impact future student-centered movie programs.

**P. 42. Early childhood education bachelor program research**

**Crager** \**Beatrice Madden, Dr. Will Kayatin, Mentor, Morehead State University, Hazard Campus*

The presenter's twenty years of experience working in early childhood education programs provided her with instant access into a complex and geographically dispersed bureaucracy. The presenter visited six LKLP sites in January and February 2010 in a five county region in Eastern Kentucky. Morehead State University enrollment policies and procedures were presented to interested applicants. Personal data was collected and submitted to university staff for evaluation. Approximately 50 follow up phone calls were made to applicants in order to determine where students were in the application process and to verify which application file materials were needed. Approximately twenty five to thirty constituents have been identified as ready to begin the Early Childhood bachelors program this fall. This research was supported by MSU Undergraduate Research Fellowship.

**P. 43. The effects of dexmedetomidine on Greyhounds during general anesthesia**

**Crager** \**Jordan D. Wuthrich, Dr. Kimberly Peterson, Mentor, Department of Agricultural Sciences, College of Science and Technology*

Historically, Greyhound dogs have been perceived to be more sensitive to anesthetic agents compared to non-sight hound breeds. Profound bradycardia, differences in drug metabolism or rare genetic predisposition to malignant hyperthermia have made Greyhound owners wary of general anesthesia. This study reviews anesthetic events of 16 Greyhounds during various surgical procedures compared to a control group. The pre-anesthetic protocol includes dexmedetomidine and butorphanol, induction with propofol and maintenance with Sevoflurane. Along with consistent anesthesia, this protocol provided excellent analgesia and the Greyhounds were less susceptible to surgical stimulus. This study also reviews monitoring values as well. This research was supported by MSU Undergraduate Research Fellowship.

**P. 44. A two-year evaluation of disease susceptibility and fruit yield of selected heirloom and hybrid tomatoes**

**Crager** \**Joshua Riggsby, Jennifer Harman, Dr. C. Brent Rogers and Dr. Debbie Johnson, Mentors, Department of Agricultural Sciences, College of Science and Technology*

A field study was designed to compare selected hybrid to selected heirloom tomato (*Solanum lycopersicum*) cultivars. In 2008 tomato transplants were put in field plots consisting of five plants of each cultivar on a raised bed covered in black plastic. Each cultivar was replicated three times. Standard production protocols were used. Disease ratings and fruit harvest were initiated at appropriate times and continued until production dropped below commercially acceptable levels. The field study was repeated in 2009. All data were statistically analyzed. Disease susceptibility of certain heirloom cultivars was less than or equal to that of hybrid cultivars. Total fruit yields for both seasons were highest for the hybrid cultivars, although not significantly better than the yields of some of the heirloom cultivars.

**P. 45. Prevalence of *Salmonella* spp. in cow-calf herds grazing on pastures treated with poultry litter**

**Crager** \**Heather Kettenring, Jessica Robinette, Megan Voyles, Dr. Tammy M. Platt, Dr. Troy J. Wistuba, Dr. J. Mike Phillips, and Guy H. Loneragan, Mentors, Department of Agricultural Sciences, College of Science and Technology, Department of Agricultural Sciences, College of Agriculture, Science, and Engineering, West Texas A&M University*

*Salmonella* is a food-borne bacteria attributed to 1.4 million illnesses and 500 deaths annually in the US. *Salmonella* spp. are common in the GIT of mammals, therefore, beef and dairy products can be a medium for human exposure. Poultry litter is often used as pasture fertilizer and can be a source of contamination in cattle. One hundred samples from 4 pastures treated with poultry litter and 2 untreated pastures were collected from central Arkansas and sent to West Texas A&M for analysis. Results showed no viable *Salmonella* spp. were isolated from the samples. Results may indicate that treating pastures with poultry litter has little effect on *Salmonella* spp. prevalence in animals grazing that pasture. This research was supported by the Department of Agriculture, MSU.

**P. 46. Racing towards the finish; youth and greyhounds learn together, a juvenile justice model for success**

**Crager** \*Cayla Anderson, Dr. Kimberly Peterson, Mentor, Department of Agricultural Sciences, College of Science and Technology

Learning models in juvenile justice are traditionally difficult to evaluate. More specifically, the effects of the presence of animals on learning are not well documented. In this regional engagement project between a state university, a state department of juvenile justice and a greyhound adoption agency, female youth in a residential juvenile justice center learn vocational and technical skills while training retired racing greyhounds to become family pets. Through an ongoing series of 12 week learning cycles, greyhounds learn home and obedience skills that may enhance adoption success. In addition to training activities, youth explore animal careers and learn important job skills through classroom and laboratory activities. A daily journal of youth experiences with their greyhounds is utilized to prepare publications of original works. Veterinary Technology students gain proficiency through a service learning curriculum which provides wellness care for the greyhounds and career modeling for the youth. Current findings suggest: improved academic success, increased self-efficacy; 53% decrease in reportable incidents; a decrease in adoption failure and euthanasia of dogs. This study suggests sustainability as a model for other youth facilities. Support from IRAPP and outside grants.

**P. 47. The feasibility of Morehead State University having a community supported agriculture (CSA) program**

**Crager** \*Clacey Henry, Undergraduate Engagement Fellow; Dr. Janet Rice McCoy, Mentor, Department of Communication, Media, and Leadership Studies; Dr. Mike Phillips, Mentor, Department of Agricultural and Human Sciences; Maggie Miles, Community Partner, Hippie Holler Farm CSA

Community Supported Agriculture (CSA) programs are a subscription economic and entrepreneurial endeavors allowing small farmers to expand their livelihood. Basically, a CSA service for vegetables connecting the farmer with the consumer. Since MSU does not currently have a program, this feasibility study explores the capability and logistics of having a CSA at MSU. The benefits to students are explored including the opportunity to learn agriculture diversity, transitions, and sustainable alternatives to tobacco production while applying knowledge to marketable skills. If implemented, this program would lay the groundwork for building partnerships between MSU and the region, thus fulfilling regional needs through community development including improved general physical and emotional health of community members.

**P. 48. Mommy and me...in the garden and kitchen**

**Crager** \*Ronda Rex, Dr. Mike Phillips, Mentor, Department of Agricultural Sciences, College of Science and Technology

This program helps parents, grandparents, or guardians and their children (ages 6-8) learn, adopt and practice gardening and cooking skills, make healthy food choices, and spending quality time together as a family. Each of the 8 classes focuses on cooking, reading, math and science skills through hands-on learning. Parents and children attend the classes together working on gardening and cooking what they have grown in the garden. At the end of the 8 sessions, each child will graduate receiving a certificate of completion. The Campbell County Cooperative Extension District Board provides full funding for this program.

**P. 49. UmuD expression in DNA damaged and undamaged *Acinetobacter* and *Escherichia coli* cells**

**Crager** \*Gavin Howington, \*Sara Wheeler, Dr. Janelle Hare, Mentor, Department of Biology and Chemistry, College of Science and Technology

DNA is vulnerable to mutation through many elements, such as chemicals (mitomycin C), so to protect genomes, organisms produce proteins such as UmuD and UmuC to replicate damaged DNA. Using the technique of Western blotting, UmuD expression from native and constitutive promoters can be qualitatively and quantitatively determined. UmuD proteins with histidine tags on their C or N termini were constructed to facilitate the isolation and purification of UmuD. Our anti-UmuD peptide antibodies show UmuD production in various host cells and from both promoters. We will next investigate whether this protein from *Acinetobacter* can be cleaved by DNA damage like its *Escherichia coli* homolog. This project was supported by NIH Area R15GM085722-01A1 and NIH 2P20RR016481-09.

**P. 50. SOS mutagenesis is found in only one member of the genus *Acinetobacter***

**Crager** \*Jodi Wilder, Alison Grice, Tyler Elam, Dr. Janelle Hare, Mentor, Department of Biology and Chemistry, College of Science and Technology

We are looking at the responses of cells to DNA damage, such as chemicals or UV radiation, in the genus *Acinetobacter*. In a three day quantitative SOS mutagenesis assay, if UmuDC proteins are expressed in response to UV exposure, antibiotic resistance increases in UV-exposed vs unexposed cells. At first we exposed various strains to UV radiation, and observed that they all expressed the same level of antibiotic (rifampin) resistance, except for *A. ursingii* strain BAA617, which showed a 25-fold increase in its SOS mutagenesis response. Our current studies involve testing additional *A. ursingii* strains to determine if these strains also display SOS mutagenesis, unlike all other *Acinetobacter*. This project was supported by NIH AREA R15GM085722-01A1 and NIH 2P20RR016481-09.

**P. 51. *Escherichia coli* Host Source Tracking in the Dry Creek Watershed, Rowan County, Kentucky**

**Crager** \*Kristen Platt, Amy Potter, Nastassia Shields, Brittany Moore, Marisa Kamelgarn, April Haight and Dr. Geoffrey W. Gearner, Mentors, Department of Biology and Chemistry, College of Science and Technology

Dry Creek, a tributary of Triplett Creek, in Rowan County, Kentucky, has been the focus of a project to develop a watershed based plan which assesses and identifies sources of a variety of contaminants, including bacterial pathogens, then recommends a suite of best management practices to address stream impairments and improve stream quality. In this study, we have utilized *Escherichia coli* as a surrogate for bacterial pathogens. In an attempt to identify the host sources of *E. coli* in the Dry Creek watershed, a DNA fingerprinting method using repPCR was used to characterize *E. coli* collected from a panel of known host sources, as well as from study sites in the watershed. After bacterial isolate's identity was confirmed as *E. coli*, DNA was extracted and a DNA fingerprint was produced. Each watershed *E. coli* DNA fingerprint was compared to a panel of 92 *E. coli* DNA fingerprints from a variety of known host sources (humans, horses, cattle, sheep, goats, pigs, chickens, dogs, cats, and deer). Dendogram analysis of the watershed *E. coli* isolates suggest that most of the bacteria evaluated (up to 75% from individual sampling sites) originated from humans, while a smaller number originated from domesticated animals. These data suggest that human fecal sewage is the major source of *E. coli* in the four Dry Creek watershed sites assessed. This study was supported by the Kentucky P.R.I.D.E., the Kentucky Waterways Alliance, and the MSU Undergraduate Research Fellowship program.

**P. 52. *Escherichia coli* Contamination of the Triplett Creek Watershed, Rowan County, Kentucky**

**Crager** \**Brittany Moore, Kristin Platt, Marisa Kamelgarn, Nastassia Shields, April Haight and Dr. Geoffrey W. Gearner, Mentor, Department of Biology and Chemistry, College of Science and Technology*

Sections of the Triplett Creek Watershed have been identified as impaired for their designated use by the Kentucky Division of Water. Excessive levels of *Escherichia coli* bacteria contribute to the impairment. The purpose of this study is to assess the occurrence and density of *E. coli* in 34 sampling sites throughout the watershed over a 12-month period. Monthly sampling of the watershed commenced in July 2009. Additionally, two seasonal five samples in 30 days events were conducted for summer and fall 2009. EPA Method 1640, which utilizes mTEC medium, was employed to detect and enumerate *E. coli* in the collected water samples. Numerous sites in the watershed exhibited *E. coli* densities that exceeded the KDOW standard of 130 *E. coli* CFU/100 mL (a geometric mean of five samples collected within 30 days) and/or 240 *E. coli* CFU/100 mL (single sample counts). These data indicate that sections in the watershed continue to exhibit impairments. These data will be used to develop a watershed based plan that will address the impairments through the selection and implementation of appropriate best management practices. This study is supported by a Kentucky Division of Water 319h grant and the MSU Undergraduate Research Fellowship program.

**P. 53. A multi-wavelength study of the galactic supernova remnant CTA 1**

**Crager** \**Emily J. Goff, Nathan D. Fite, Caleb K. Grimes, Joshua M. Tussey, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Sciences, College of Science and Technology*

We present a multi-wavelength study of the galactic supernova remnant (SNR) CTA 1. Our analysis focuses on radio and x-ray emission and is based on data collected by the *Chandra* X-ray Observatory, the *ROSAT* X-ray Observatory and the Morehead State University 21-Meter Space Tracking Antenna operating at 1.4GHz. CTA 1 which is located at a distance of approximately 1.4kpc features radio emission in the form of a crescent-shaped rim located along the southern and eastern portions of the SNR. CTA 1 also consists of a central bridge of radio and x-ray emission produced by a shock-heated interior plasma and a central pulsar. The results of this analysis are presented and discussed. Support for this project comes from a grant from the Kentucky Space Grant Consortium.

**P. 54. An on-line catalog of extragalactic supernova remnants**

**Crager** *Jason Tucker, Dr. Thomas G. Pannuti, Mentor, Department of Earth and Space Sciences, College of Science and Technology*

A supernova remnant (SNR) is an expanding structure produced by the death of a star in a supernova explosion. These sources are typically observed at X-ray, optical and radio wavelengths but significant observational obstacles exist that limit our understanding of Galactic SNRs. To address these limitations, observers have searched for SNRs in nearby galaxies: a need has arisen to catalog these extragalactic SNRs with the goal of better understanding global SNR properties. We are compiling a catalog of extragalactic SNRs: our catalog includes over 420 SNRs as identified in over 20 galaxies through observations made chiefly at the three wavelength ranges mentioned above. Initial results will be presented and discussed.

**P. 55. Kentucky Space: the sub-orbital cubesat experimental mission**

**Crager**

**\*Daniel C. Graves<sup>1</sup>, \*Nathan D. Fite<sup>1</sup>, Tyler T. Burba<sup>1</sup>, Jason R. Bratcher<sup>2</sup>, Daniel M. Erb<sup>2</sup>, Anthony K. Karam<sup>2</sup>, Zach A. Jacobs<sup>2</sup>, Dr. Benjamin K. Malphrus<sup>1</sup> and James E. Lump<sup>2</sup>, Mentors, Department of Earth and Space Science, College of Science and Technology**

(1 – Morehead State University 2 – University of Kentucky)

Kentucky Space is a consortium of universities throughout Kentucky with the goal of developing technologies, expertise, and ultimately a space economy in the state. In three years, Kentucky Space has progressed from concept to the launch of two sub-orbital payloads, a near-space balloon mission, and the completion of its first orbital satellite, KySat-1, launching in 2010. In an effort to test hardware flying on the KySat-1 launch, Kentucky Space developed and launched a third sub-orbital payload, the Antenna Deployment And Monofilament Actuator test Satellite (ADAMASat). Kentucky Space was also responsible integration of a payload from California Polytechnic University, and for all ground operations related to the Sub-Orbital Cubesat Experimental Mission (SOCEM). We present the ground operations, as well as data collected from the onboard experiments.

**P. 56. Developing an interorbital systems TubeSat at Morehead State University**

**Crager**

**\*Tyler G. Rose, Christopher A. Bailey, Robert T. Blair, Kelsey L. Koontz, Tyler Burba, Clay Graves, Professor Bob Twiggs, Mentor, Department of Earth and Space Science, College of Science and Technology**

Space Science students at the Astronautics Systems Lab (ASL) of Morehead State University are developing one of the first TubeSats for Interorbital Systems (IOS) scheduled for launch in the last part of 2010. The TubeSat will be launched on an IOS Neptune 30 launch vehicle into a parabolic orbit of 310 km. The project is a collaboration with Aslan Academy, a private school near Los Angeles. The initial test flight is expected in the 2<sup>nd</sup> Quarter of 2010 near IOS in the Mojave Desert, CA. The test flight will utilize sensors to determine environmental and inertial data to prepare for a planned orbital launch, which will utilize a 2U length TubeSat with the bus electronics provided by ASL and the propulsion systems designed by Aslan Academy.

**P. 57. Using a conceptual change model for developing a force and motion curriculum: phase one**

**Crager**

**\*Jacob D. Burns, Dr. Elizabeth A.E. Roland, Mentor, Department of Earth and Space Science, College of Science and Technology**

Previous studies in force and motion found major misconceptions which have been used to create an assessment. The study focuses on refining the assessment instrument administered to 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade students. The assessment consisted of 17 items with 14 multiple-choice and 3 open responses. Results in the test had shown multiple strengths which included: all distracters were selected, and targeted concepts were addressed multiple times. Weaknesses included: the wording of items on the assessment being ambiguous and misleading, as well as the clarity in formatting of the items. Refinement is needed for the collection of valid and reliable data for the project. This research is supported by MSU Undergraduate Research Fellows and the MSP Learning and Physical Sciences Grant.

**P. 58. Calibration of the Miniature Radio Frequency for the Lunar Reconnaissance Orbiter**

**Crager** \*Tyler T. Burba, Dr. Benjamin K. Malphrus and Jeffrey Kruth, Mentors, Department of Earth and Space Science, College of Science and Technology

The Lunar Reconnaissance Orbiter (LRO) is a NASA mission whose intent is to create a comprehensive atlas of the Moon's features and resources. LRO has 7 scientific instruments, one of which is the Miniature Radio Frequency (Mini-RF) instrument-- a synthetic aperture radar that operates at two frequency ranges, S- and X-band. This project involves calibration and end-to-end performance characterization of the spacecraft's X-Band system. The 21 m Space Tracking Antenna at Morehead State University will be configured with a transmitter system designed and fabricated during this project, which will transmit a high power X-band signal at 7,139.5 MHz with extreme polarization purity. The X-band signal will be beamed at the Mini-SAR on LRO on orbit around the moon to calibrate the mini-RF.

**P. 59. Using geographic information systems to assess solar energy potential**

**Crager** Emily Howard, Dr. Timothy Hare, Mentor, Department of Earth and Space Science, College of Science and Technology

This project estimates solar energy potential for Rowan County Kentucky using geospatial analysis. Global consumption of fossil fuels is increasing at an alarming rate. The threat of running out of fossil fuel energy sources is eminent, but the adverse effects of emissions are also disconcerting and are potentially impacting global climate. Turning to cleaner, renewable energy sources like solar, geothermal, and wind energy is one solution to both these problems. I use geospatial analysis to calculate the amount of solar radiation received based on topographic data derived from digital elevation models (DEM). This research assesses the solar radiation received in Rowan County, Kentucky to determine if solar energy is a viable alternative energy source for this area.

**P. 60. Development of FlatSat, a new version of KySat-1 Orbital for software testing and subsystems development**

**Crager** \*Brandon L. Molton, \*Kathleen M. Brown, Dr. Benjamin Malphrus, Mike Combs and Jeff Kruth, Mentors, Department of Earth and Space Science, College of Science and Technology

The Kentucky Space consortium is a group among partners throughout Kentucky focused on small satellite development and access to space for small payloads. A standard developed by the KYSpace consortium is KYSat-1 Orbital, which uses commercial CubeSat technology based around a 10cm X 10cm X 10cm size standard. FlatSat, a new model of KySat-1 Orbital, is based on a standard originally developed by NASA as a form for development and testing of satellite components. The ability to interface and test new subsystems for future KYSat-1 models, as well as testing new versions of the KySat-1 Orbital software, will be highly beneficial for KYSpace's future in small satellite development. FlatSat is supported by MSU Undergraduate Research Fellowship, the Kentucky Space Grant Consortium, and Kentucky Space.

**P. 61. Attitudes and behaviors of dietary supplement use among health, wellness and human performance students**

**Crager** \*Laura Stacy, Dr. Gina Blunt and Dr. Jennifer Dearden, Mentors, Department of Health, Wellness and Human Performance, College of Science and Technology

In the United States, the dietary supplement industry is a multi-billion dollar market with a range of products designed to improve health, enhance athletic performance, and/or supplement basic dietary needs. Motivations to use supplements are complex and little is known about why people use a particular product. The purpose of this study is to better understand the attitudes and behaviors toward dietary supplement use among undergraduate students at Morehead State University. Participants were volunteers including students taking courses in the Health, Wellness, and Human Performance Department. Participants were asked to complete a questionnaire on dietary supplement use, attitudes, motivations, and where they acquire information on safe and efficacious supplements. Results include data from the pilot testing phase of the project and future directions. This research was funded by MSU Undergraduate Research Fellowship.

**P. 62. Developing a public relations campaign for a community health intervention**

**Crager** \*Michael Ash, Dr. Gina Blunt and Dr. Monica Magner, Mentors, Department of Health, Wellness and Human Performance, College of Science and Technology

With the high level of negative health conscious messages in today's society, low-income areas are challenged with the task of finding positive health materials. Martin County, Kentucky is one such area that is faced with these challenges. Martin County on the Move is a grant project that focuses on improving physical activity and nutrition in middle school youth, their families, and the greater community. This presentation describes the creation of a public relations campaign that incorporates Internet and print to promote better access to positive health materials. The campaign includes a community website, event banners, t-shirts and other various promotion materials, all designed around a character who symbolizes the active components of a healthy lifestyle.

**P. 63. Development of an evidence-based practice protocol for prevention of injury related to anticoagulation therapies**

**Crager** \*Kristin Burchett, \*Jade Campbell, \*Beth Parker, \*Lisa Yearsley, Michelle McClave, MSN, RN, Mentor, NURB 361 Introduction to Nursing Research, Department of Nursing, College of Science and Technology

To achieve optimal patient outcomes, this group investigated best practice literature regarding reduction of patient harm associated with the use of anticoagulation therapy. A variety of literature was reviewed, along with current practices utilized in three clinical facilities located in Northeastern Kentucky. With the use of these findings, an evidence-based practice protocol was developed for use in the Morehead State University Department of Nursing STAT Nursing Center. This practice protocol will assist nursing and other students in meeting the JCAHO National Patient Safety Goal regarding reduction of patient harm during clinical laboratory and simulation activities.

**P. 64. Development of an evidence-based practice protocol for preventing medication errors using medication labeling**

**Crager** \*Tonya Drake, \*Jessica Jones, \*Bethany Wells, \*Jessica Wells, Michelle McClave, MSN, RN, Mentor, NURB 361 Introduction to Nursing Research, Department of Nursing, College of Science and Technology

This project investigated best practices regarding the safety of administering medications in a clinical facility. A variety of evidence-based literature was reviewed, as well as practice protocols currently used in local clinical facilities. One particular focus was placed upon labeling of medications taken out of their original container. Subsequently, an evidence-based practice protocol on the labeling of medications as a risk reduction activity was developed for Morehead State University's Department of Nursing STAT Medical Center. This protocol will provide guidelines for students to meet the JCAHO National Patient Safety Goal designed to focus on the safe practice of medication management.

**P. 65. Development of an evidence-based practice protocol for timely reporting of critical lab values**

**Crager** \*Destiny Fife, \*Brittany Johnson, \*Kelly Lyons, \*Jennifer Talley, Michelle McClave, MSN, RN, Mentor, NURB 361 Introduction to Nursing Research, Department of Nursing, College of Science and Technology

The objective of this project was to investigate evidence-based practice mechanisms that can be utilized in the reporting of critical test and diagnostic procedure results. In order to gather best practices, a variety of literature was reviewed, as well as current clinical protocols from three clinical facilities in the Morehead State University service area. Following review of these practices, an evidence-based practice protocol to meet the requirements of the JCAHO National Patient Safety Goal addressing the improvement of effectiveness of communication among caregivers was developed. This protocol will be implemented in the Morehead State University's Department of Nursing STAT Nursing Center.

**P. 66. Development of an evidence-based practice protocol to improve accuracy of patient identification**

**Crager** \*Joseph Caldwell , \*Kayla Kouns, \*Tracey Sizemore,\* Nora Tipton, Michelle McClave, MSN, RN, Mentor, NURB 361 Introduction to Nursing Research, Department of Nursing, College of Science and Technology

The purpose of this project was to develop a mechanism to reliably identify patients in an inpatient medical facility, as well as to match the appropriate healthcare service to the correct individual. Baccalaureate nursing students perform their clinical experiences in a variety of medical facilities in the Morehead State University service area; three of these facilities' current protocols were reviewed. These were compared and contrasted with a review of a variety of literature and a practice protocol was developed utilizing evidence-based practice findings. This protocol will assist nursing and other clinical students in the Morehead State University's Department of Nursing STAT Nursing Center in meeting the JCAHO National Patient Safety Goal requirement of improving the accuracy of patient identification.

**P. 67. Development of evidence-based practice protocol for prevention of central-line associated bloodstream infections**

**Crager** \*Charla Burchett, \*Jamie Joseph, \*Brittany Kellum, \*Andrew Slone Michelle McClave, MSN, RN, Mentor, NURB 361 Introduction to Nursing Research, Department of Nursing, College of Science and Technology

The goal of this project was to design an evidence-based practice protocol that can be implemented to prevent central line-associated bloodstream infections in the hospital setting. Investigation was performed using a variety of evidence-based literature as well as guidelines currently in use by three local medical centers. The resulting protocol was designed to be utilized in the Morehead State University's Department of Nursing STAT Nursing Center to provide guidance for nursing and other students during laboratory and simulation practice.

**P. 68. Design and Implementation of a Data Mining Toolbox using C#**

**Crager** \*Patrick Brans, Frederik Delbroek, Geert Severijns, Dr. Sherif S. Rashad, Mentor, Department of Mathematics, Computer Science and Physics, College of Science and Technology

Data mining is one of the emerging fields in computer science. Data mining is the process of searching large volumes of data to find valuable and previously unknown patterns and to predict the future outcomes using these patterns. In recent years, data mining techniques have been applied to solve many problems from different fields. We are developing a toolbox using C# that will help researchers in the fields of data mining and knowledge discovery to apply and test multiple data mining algorithms using different input datasets. The data mining algorithms will include different clustering and classification algorithms. Also, this toolbox will include algorithms for data preparation and preprocessing.

**P. 69. A note on trees with disjoint dominating sets and identifying codes**

**Crager** \*Justin Smallwood, Math 499C, Dr. Sherif Rashad, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

A dominating set in a graph is a set  $S$  of vertices such that every vertex not in  $S$  is adjacent to a vertex in  $S$ . An Identifying code  $C$  is a dominating set such that no two vertices in the graph are adjacent to exactly the same vertices in  $C$ . We provide a constructive characterization of trees whose vertex set can be partitioned into a disjoint dominating set and identifying code.

**P. 70. The mouse in the maze: calculating the surprise of escape**

**Crager** \**Kayla Lykins, \*Justin Smallwood, Dr. R. Duane Skaggs, Mentor, MATH 495 Codes & Cryptography, Department of Mathematics, Computer Science and Physics, College of Science and Technology*

If E is an event in a sample space S, then the *surprise* of E is  $s(E)=-\log(P(E))$ , where P is the probability that the event will occur. A mouse is placed into an 8x8 grid and moves from space to space through a random process. There is one selected space in which a trap is placed. Calculations of entropy and surprise are used to determine how likely it is for the mouse to make it out alive. Furthermore, the question of how surprised we should be in the event the mouse makes it out of the maze is answered as well. This problem involves using Markov Chains and transition matrices to indicate the location of the mouse. This project was completed during MATH495: Codes & Cryptography.

**P. 71. Course Grade Calculator using SDK 3.0**

**Crager** \**Amanda Mills, Dr. Sherif Rashad and Dr. R. Duane Skaggs, Mentors, CS499c CS Capstone, Department of Mathematics, Computer Science and Physics, College of Science and Technology*

With the benefit of the Apple iPhone's Software Development Kit (SDK), this application allows users the ability to calculate one's total course grade, while enjoying additional features to help boost their grade. With the ability to calculate grades based on course work percentage value, this allows users to be sure all grades display accurately. Multiple course entry is accepted, while edits and bonus work entry are optional.

**P. 72. Steganography: The Message Hidden Within**

**Crager** \**James Howard, \*Zach Wagner, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science and Physics, College of Science and Technology*

Steganography is the art and science of hiding information, sometimes in plain sight. A short history of uses of steganography and a breakdown of algorithms and codes used to perform digital steganography will be discussed. Detailed analysis of how the algorithms and programs work as well as goals for improvement upon our algorithms will be presented. We will show simple demonstrations of steganographic algorithms. This project was completed during MATH 495: Codes and Cryptography.

**P. 73. Simulating a fair coin toss**

**Crager** \**Anthony Fitch, \*Amanda Mills, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology*

Sometimes it is important to convince someone that you know some information without actually revealing the information. We describe a coin-flipping simulation in which each person must commit to either Head or Tails and provide specific information to prevent cheating by either person. We show that it is possible to verify each person's choice to determine who won the virtual coin toss. This project was completed during MATH 495: Codes and Cryptography.

**P. 74. Simulation of the Enigma machine**

**Crager** \**Johnathon Harris,\* Michael Blankenship, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology*

The Enigma Machine is a polyalphabetic substitution cipher engine best known for its use in WWII by Nazi Germany. We examine the electromechanical operations of the Enigma machine and attempt to simulate it using modern programming techniques, while also investigating the history of the cipher, how it was initially broken, and possible methods to improve the cipher. This project was completed during MATH 495: Codes and Cryptography.

**P. 75. Latin squares: solutions and uses in coding theory**

**Crager** \*Emily Egan, \*Whitney Littleton, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

A Latin square is an  $n \times n$  table filled with  $n$  different symbols in such a way that each symbol occurs exactly once in each row and exactly once in each column. Some of the uses of Latin squares include error correcting codes and mathematical puzzles such as Sudoku. We have analyzed different cases and written a program that will solve partially completed Latin squares and/or correctly output that there is no solution. This project was completed during MATH 495: Codes and Cryptography.

**P. 76. Methods of primality testing**

**Crager** \*Craig Hamilton, \*Jesse Seip, Dr. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

The ability to determine whether or not a number is prime has been studied for thousands of years. With the recent focus on security within the financial realm, and with encryption systems, such as the RSA system, that rely on prime numbers, primality testing has taken on a new focus. We will implement computer programs simulating primality tests, old and new, and discuss the efficiency of each method. We also present problems with each that future primality tests could seek to improve. This project was completed during MATH 495: Codes and Cryptography.

**P. 77. Knot mosaics: finding the smallest grid possible to represent various prime knots**

**Crager** \*Kayla Lykins, Dr. Tim O'Brien, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Knot theory is a relatively new field of mathematical topology that was inspired by everyday knots such as shoelaces and rope. Knot mosaics were pioneered by Samuel Lomonaco and Louis Kauffman and consist of 11 symbols placed together in a grid to represent these knots. It has been theorized that every knot can fit into one of these  $n \times n$  grids (where  $n$  differs depending on the knot). The intent of this project was to determine the smallest possible  $n$  that will fit prime knots of the lowest crossing number. This applies to the fields of topology, biology (DNA encryption), statistical mechanics, quantum mechanics, molecular chemistry, particle physics, and many other areas of math and science.

**P. 78. Facilitating a large network migration to an advanced server domain model**

**Crager** \*Joseph Patrick, Connie Grimes and Steve Richmond, Mentors, Department of Math Computer Science, and Physics, College of Science and Technology

The MSU IT Department is planning a migration of the campus network to an advanced server domain model using Microsoft's Active Directory software. The purpose for the change is to improve flexibility and efficiency in network administration and user support. My project work includes becoming proficient with workstation migration and to develop a checklist that can guide the IT technicians in performing individual workstation migrations. The checklist will include known exceptions that may be present for different workstations or operating systems on campus. My project also includes development of a document intended for the user to communicate the purpose of the change, processes to be followed and what the user can expect to see from the change including any changes in user policy.

**P. 79. Tropical mathematics: computing phylogenetic rank and polyhedral fans**

**Crager** \*Whitney Littleton, MATH 499C, Dr. Sherif Rashad and Dr. R. Douglas Chatham, Mentors, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Tropical mathematics is a relatively new area of mathematics; the basic arithmetic operations of addition and multiplication are redefined. The tropical sum of two numbers is their minimum, and the tropical product of the two numbers is their sum. The aim of the notion of phylogenetic rank is to model distance data that is a mixture of different  $k$  evolutionary histories. In this project we analyze ways to find the phylogenetic rank when  $k$  is 2 and see if it is possible to generate a union of finitely many convex polyhedral cones that fit nicely together.

**P. 80. Know your digital signature: RSA Method**

**Crager** \*Thomas Pinion, Vivian Cyrus, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Cryptography has been around since the days of Caesar and is still very prominent in today's world. The rise of the internet and the ever innovating computer has made certain tasks much easier to accomplish. Rather than spend countless hours traveling to shop, many people choose to shop online instead. Online shopping is a new Rave in society today, but with all good things in life, there is always a darker side. As online shopping increases, so does identity theft. How do buyers know that the information that we are sending sellers (such as: credit card information, addresses, etc.) is private? This will be a simplified look at the mathematics involved in the security of online shopping.

**P. 81. Quantum cryptography**

**Crager** \*Joshua Bradley, Sean Carter, Dr. R. Duane Skaggs, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Connections between quantum mechanics, information theory, and relativity have given rise to the development of quantum cryptography, which utilizes quantum bits (qbits) as the method of information transfer between two quantum systems. The focus of this presentation will be to delineate major concepts from quantum mechanics that form the foundation of quantum cryptography, including Heisenberg's Uncertainty Principle, quantum entanglement, and quantum coherence/decoherence. Given the current state of quantum computing, we will illustrate why quantum cryptography is thought to be the next revolutionary advancement in science. This project was completed in Math 495: Codes and Cryptography.

**P. 82. Controlling chaos in numerical weather prediction**

**Crager** \*Grant C. Davis, Dr. Kathryn M. Lewis, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

In this article, the importance of weather forecasting is given. Linear weather forecasting is introduced. The contradiction of linear weather forecasting is shown. The impossibility of long-term weather forecasting is explained through the work of Lorenz. Chaos is introduced. Examples of chaos in bifurcation, the water-wheel model, and the eye of Jupiter are described. Implications of chaos in weather prediction are realized. The question of defining long-term forecasting is raised. Using three data sources for Morehead, Kentucky, temperature forecasts are analyzed for accuracy and reliability. Numerical weather analysis is used for next-day, 3-day, 5-day, 7-day, and 9-day forecasts. The question of whether or not chaos is controlled is answered.

**P. 83. e-Statistics: Teaching without a physical textbook**

**Crager** \*Bradley A. Schneider, Dr. Lloyd R. Jaisingh, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Capturing students' attention in a Statistics class can be hard work. This is only made more difficult by dry, boring textbooks. A student is more likely to respond positively to a Statistics course which utilizes a mixture of vivid graphics, animations, and text, leading to the development of *e-Statistics*. *e-Statistics* is a complete college-level Statistics course being developed with Adobe Flash and ActionScript. It includes an e-book, e-notes, interactive section reviews, Microsoft Excel workbooks and activities, TI 83/84 calculator activities, Minitab explorations, and more, all presented in an engaging virtual environment which aims to engage students through the use of technology. The e-Statistics course should be much cheaper than a regular statistics textbook for both consumers and publishers, yet it has much more to offer.

**P. 84. To run or not to run: finding the optimal speed to move through rain**

**Crager** Erica D'Agnillo, Dr. Christopher Schroeder, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Representing the human body as a three dimensional ellipsoid, the amount of rain that will hit the body moving a certain velocity can be calculated by using the orthogonal projection of the ellipsoid along a vector. By multiplying the area of this projection by the length of the apparent rain vector divided by the body's velocity, the volume of a right cylinder is achieved which represents all the rain that will hit the body. To find the optimal speed then that the body should move to minimize wetness, the volume function can be derived and its critical points can be easily found. The results show that the optimal speed varies depending on body proportions but most importantly the presence or absence of a tail wind.

**P. 85. Intrusion detection in mobile wireless networks using data mining techniques**

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

Security is a growing issue in wireless networks. Due to the lack of a physical infrastructure these networks are much easier to infiltrate and many old security solutions no longer work. By using data mining techniques, we focus on the anomaly detection side of intrusion detection and we utilize a combination of clustering and classification algorithms in order to build a normal profile for a mobile user, so that any intrusions can be tested against this pattern. We worked with the K-Means clustering algorithm and others such as Apriori, Support Vector Machines, and Frequent Pattern Trees. Our goal is to find the most time efficient method for developing a normal profile and responding to intrusions. This research is supported by MSU Undergraduate Research Fellowship.

**P. 86. An upper bound for an NxN knot mosaic**

**Crager** \*Krystal Brewington, Dr. Timothy O'Brien, Mentor, Department of Mathematics, Computer Science, and Physics, College of Science and Technology

Knot mosaics studied by Louis H. Kauffman and Samuel J. Lomonaco are each made up of eleven different square tiles called mosaic tiles. In this presentation, we will address the open question of how many true knots are in an NxN knot mosaic and also establish a smaller upper bound than the upper bound of  $11^N$ .

**P. 87. Public awareness in drug abuse and addiction: high school visits**

**Crager** \*Steven Osborne, David Turner, Kaitlyn Reynolds, Josh Stephens, Clairissa Miller, Lauren VanHook, Dr. Ilun M. White, Mentor, Department of Psychology, College of Science and Technology

The Regional Brain Awareness Project was to advance public awareness about brain health and brain research, focusing on community outreach and science information. Undergraduate and graduate students from Morehead State University assisted in the Regional Brain Awareness Project through the education of high school students (9<sup>th</sup>-12<sup>th</sup>) on drug effects of brain and behavior. The goal of this project was to gain student interest in brain research and the influence of drugs on the brain. Educational materials from the society for neuroscience and DANA organization were distributed to High School students. Outcome from our research projects in the brain lab at Morehead State University was presented and discussed. The majority of students read the material and expressed interests in reading more material; they also raised questions about specific information included in brochures and pamphlets. Quite a few of the 12<sup>th</sup> grade students were interested in brain and behavior and plan to attend MSU in fall. This activity was sponsored by the DANA Foundation and Morehead State University.

**P. 88. Sugar and spice and everything nice?**

**Crager** \*Sydney P. Howard, Dr. Laurie L. Couch, Mentor, Department of Psychology, College of Science and Technology

The present study assessed whether a females' sex roles are related to their experiences in relationships, such as commitment, relational satisfaction, jealousy, and trust. It was hypothesized that feminine females would have a higher commitment, trust, and satisfaction than others, whereas masculine females would have the highest jealousy as compared to others. Analyses were conducted on survey data from 98 college women, with female sex-types as the independent variables (i.e., feminine vs. masculine vs. androgynous vs. undifferentiated females) and the relationship variables as the dependent variables. Results suggested that the four groups did not differ in romantic satisfaction or trust for partner, but feminine females reported more commitment and jealousy than masculine and undifferentiated females. Results will be discussed in terms of therapeutic interventions for relational concerns.

**P. 89. I always feel like somebody's watching me: An assessment of the Big Five and the Imaginary Audience**

**Crager** \*T. Zacharey H. Goble, Dr. Laurie Couch, Mentor, Department of Psychology, College of Science and Technology; Kristine M. Kelly, Warren H. Jones, Jeffrey M. Adams, University of Tennessee

Previous research has suggest that individuals experience adolescent egocentrism or feelings of public self-consciousness through early adulthood, however little is known about whether or not certain personality traits can make a person more susceptible to such imaginary audience feelings. Thus, it was hypothesized that varying degrees of imaginary audience feelings would be linked differentially to personality traits (i.e. the Big Five). Survey data was collected from 203 college student volunteers at a large southeastern public university. Results from our study suggested that individuals who are high in neuroticism and low in openness and extroversion are more likely to show such feelings of public self-consciousness. Results will be discussed in term of their therapeutic implications.

**P. 90. The effects of alcohol on emotional detection**

**Crager** \*Beth Moore, \*Marissa Manns, \*Silena Skaggs Thornsberry, David Book, Dr. Ilun M. White, Mentor, Department of Psychology, College of Science and Technology

Alcohol is a known depressant, and also acts as a neurotoxin, causing mild to severe disorientation, loss of coordination, and possible memory loss. Previous studies have suggested that those who are nervous or afraid in social situations may drink to relieve the tension; however, this affected their ability to judge the emotional responses of others. In this study, we tested the hypothesis that those were exposed to alcohol ~15-24hrs prior to testing would make more errors in detecting emotions (especially negative ones) in people's faces and/or tone. We also tested the hypothesis that alcohol would affect high levels of cognitive thinking (even if they operate normally at low levels). Student volunteers at Morehead State University were ran through the DANVA 2 program for emotional detection testing. A survey was used to obtain past and recent drug history. The data from the experiment was compiled in order to note any correlations to the intake of alcohol and the person's difficulty with correctly identifying emotions. Subjects were also given a series of cognitive tests ranging from low to high levels, and their results were recorded and analyzed to determine correlation between their level of alcohol usage, and their ability to think cognitively.

**P. 91. Attachment and children's emotion regulation skills**

**Crager** \*Chelsea Baker, Hank Scott, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science and Technology

The current study examines the relationship between attachment and emotion regulation. 35 parents and their children, from a low to moderate SES participated in the study. Using Ainsworth's (1978) Strange Situation procedure, attachment was assessed at age 4. Crittenden's (2004) coding system for preschoolers was utilized to classify attachment. Two years later participants were assessed using a delay of gratification task (Silk, 2006) to examine emotion regulatory behaviors. Results show that securely attached children utilized passive waiting behaviors significantly more than their insecurely-attached counterparts. This is hypothesized to be a result of less emotion to regulate due to their secure attachment. Investigation is underway to examine emotional expression to conclude if this new hypothesis is supported. This project was funded by grants from MSU's IRAPP and from the Kentucky NSF EPSCOR programs.

**P. 92. Continuing assessment of the Bullseye Survey of Valued Living**

**Crager** Cory Ruffing, \*Cassiah Winkle, Dr. John T. Blackledge, Mentor, Department of Psychology, College of Science and Technology

The Bullseye was administered alongside several previously validated self report instruments with an undergraduate sample of approximately 150 subjects, then administered again two weeks later to establish test-retest reliability. After its initial validation with a US sample, the Bulls-Eye Value Survey subscales and total score appeared to measure an independent dimension of psychological functioning that is negatively correlated with measures of depression, anxiety and stress and positively correlated with a measure of psychological flexibility. The Bullseye also exhibited acceptable test-retest reliability and correlated well with previously validated self report instruments measuring similar constructs.

**P. 93. High consumption of nicotine and caffeine and reports of attention problems on the ASRS**

**Crager** \*Zachary D. Porter, Bobby F. Fitzpatrick, Nathaniel P. Dials, Dr. Sean P. Reilley, Mentor, Department of Psychology, College of Science and Technology

Prior research has shown that high consumption of nicotine and caffeine isn't uncommon among undiagnosed adults with AD/HD. This is not surprisingly given both caffeine and nicotine are related to stimulant drug effects produced by Ritalin and Adderall which are used to treat adults with AD/HD. The current study examined the relation among self-reported caffeine and nicotine use and attention problems on the Adult AD/HD Self-Report Scale among 175 participants who had no prior diagnosis of ADHD. It was found that high levels of caffeine and nicotine in the absence of a positive history of AD/HD did not produce ASRS ratings in the clinical AD/HD range. The results are discussed for use of the ASRS. Research supported by a prior grant from KY EPSCoR.

**P. 94. Assessing obtained AD/HD knowledge through review of diagnostic criteria and case studies**

**Crager** \**Kaitlyn J. Reynolds, Regan E. Grimes, Kayti Levine, Dr. Sean P. Reilley, Mentor, Department of Psychology, College of Science and Technology*

Attention Deficit/Hyperactivity Disorder is a common mental health disorder among children, adolescents, and adults. A wealth of information is available on AD/HD through the internet. Web-based information about AD/HD is helpful for psychoeducation about the disorder and treatment options. However, web-based information about AD/HD can be used for malingering purposes. The present study (n=200) evaluated and found that quiz items created to assess knowledge gained from review of the diagnostic criteria for AD/HD as well as adult case studies about the disorder were reliable and were related to increases in AD/HD knowledge when assessed in a pre-post fashion using a Knowledge of Attention Deficit Disorders Scale. Results are discussed in relation to AD/HD training and assessment.

**P. 95. Personality, life satisfaction, and relational patterns of the cheating heart**

**Crager** \**Kera Ti V. King, Suzannah M. Chapman, Dr. Laurie L. Couch, Mentor, Department of Psychology, College of Science and Technology*

Surprisingly, little is known empirically about the potential differences between romantic cheaters and non-cheaters. One study has suggested that they differ in terms of personality (Orzeck & Lung, 2005), but few other studies have been noted. The present study sought to extend previous research on the topic, to include additional variables. Participants were college student volunteers who completed a survey. Results suggested that cheaters scored higher on neuroticism, cynicism, anxiety about relationships, and the love styles ludus and mania where as, non-cheaters scored higher on extraversion, agreeableness, life satisfaction, and trust.

**P. 96. The effect of expectations on responses to interracial interactions**

**Crager** \**Shayla Miller, Dr. David A. Butz, Mentor, Department of Psychology, College of Science and Technology*

Many people find interracial interactions to be stressful, and if given the opportunity, avoid such interactions. The current work experimentally examines whether positive expectations improve responses to interracial interactions. Participants were told that the study is focused on understanding how information in internet profiles influences responses in interactions. Participants created a basic internet profile and viewed their "partner's" profile, which specified the partner's race as Black/African American. Expectations about the partner were manipulated through a confederate's response to chat questions. Participants then reported their emotions and expectations about the upcoming interaction. We predict that positive expectations about an interracial interaction partner will improve participants' emotions and expectations about the interaction. Preliminary findings will be discussed. This research was supported by the UG Research Fellowship Program.

**P. 97. Parental perceptions of their children during a problem-solving task predicts children's behavior**

**Crager** \**Kristina Schoo, \*Andrew Doan, Christa Patterson, Lisa Bryant, Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science and Technology*

The purpose of this study was to examine parent abilities to understand their children's internal state and child behavior during a challenging cognitive task, particularly how these relate to the attachment bond between child and parent. Participants included 35 parents and children from low to middle socioeconomic status. Each family completed the Strange Situation (Ainsworth, Blehar, & Waters, 1978) to classify the child's attachment. Two years later children completed a Lego task, and parents completed an Insightfulness Interview (Oppenheim, Koren-Korie, & Sagi, 2001). Results indicated that children with ambivalent attachments showed more externalizing symptoms, received more help from their parents, and completed less of the puzzle. This project was funded by grants from MSU's IRAPP and NSF's Kentucky EPSCOR program.

**P. 98. Brain Awareness Project I: Brain Drawing Contest**

**Crager** \**Lauren VanHook, Steve Osborne, Dr. Ilsun White, Mentor, Department of Psychology, College of Science and Technology*

The Brain Awareness Program focuses on providing information about brain health and awareness to the community and schools. A brain drawing contest was sent to children in grades K-8 with the question “my brain is \_\_\_\_\_”. The purpose of the contest was to create a community activity which educated participants as well as faculty about the brain. Over 300 children participated in the contest, with winners awarded certificates and interactive, educational prizes. This research was supported by Rowan County Board of Education, DANA Foundation, and Morehead State University.

**P. 99. Effects of alcohol on simple and complex learning in adolescent rats**

**Crager** \**Lauren VanHook, Clarissa Roe, Jonathan Lowe, Amanda Sullivan, Dr. Ilsun White, Mentor, Department of Psychology, College of Science and Technology, Honors Seminar Psychology 389*

Alcohol blocks NMDA receptors and binds GABA<sub>A</sub> receptors, and produces rewarding effects by enhancing dopamine in the brain. Repeated exposure to alcohol in adolescent rats produces long-term changes in behavior, likely due to enhanced susceptibility of adolescents to alcohol. This study examined the effects of repeated alcohol treatment on the ability to learn a simple task in adolescent rats. Male Wistar rats were trained to make one lever-press for a food pellet (fixed-ratio 1; FR1). Once they reached a behavioral criteria, rats received multiple injections of alcohol (2.0 g/kg) or saline, once/day for five consecutive days during postnatal days 50-54 (PD50-55). Rats were tested on FR5 that required five lever-presses to earn a pellet at 24 and 48 hours after the last injection. In addition, we examined alcohol effects on the ability to learn a complex task in adulthood. We found that rats treated with alcohol decreased the number of bar press to earn pellets, without affecting food consumption. However, compared to saline, alcohol decreased latency. Our findings suggest that repeated exposure to alcohol affected simple learning, while feeding or consummatory behavior was unimpaired. Alcohol effects on responses may reflect different states of motivation. Given that alcohol affects the GABA and glutamate system, differences in motivation and response latency were likely mediated via different brain regions. Our preliminary data indicate that alcohol exposure during adolescence produces enduring learning deficits in adulthood. This was project was a part of the Honors Seminar Course: Psychology 389.

**P. 100. Perspectives of women in reality television**

**Crager** \**Michelle L. Fiore, Dr. Ann Andaloro, Mentor, Department of Communication, Media, and Leadership Studies, Caudill College of Arts, Humanities, and Social Sciences*

This feminist audience summarizes the responses of 40 Morehead State University students to questions about women in reality television. Each student watched a fifteen minute clip of the popular MTV reality television show, *Rock of Love*. These written reactions about the female contestant’s appearance, behavior, and image as a role model give insight into how women in reality television are perceived. Through these responses, we learn how people relate to the women in the shows and the types of stereotypes that are emphasized about women in reality television. This research is meant to shed light on how these women are viewed and presented. We hope to encourage more positive images of women in similar shows in the future.

**P. 101. Parental insightfulness and the effect on internalizing and externalizing behaviors in children**

**Crager** \**Katelyn Fugate, \*Kayla Sizemore, Paula Sexton, and Dr. Shari Kidwell, Mentor, Department of Psychology, College of Science and Technology*

A central element of sensitive caregiving involves taking into account the child's feelings, underlying motives, and goals. The aim of this study is to explore parental insightfulness about child feelings and thoughts, and how it is associated with child adjustment. Parental insightfulness was assessed via the Mother's Empathic Understanding Procedure (MEUP). Specifically, parents were asked to discuss how their child felt during a task in which they were asked to talk about a recent time in which they were "good" and a time they were "bad." A puppet interview was used to measure child self-concept and psychological symptoms. Consistent with our hypothesis, greater levels of parental insightfulness on the MEUP was associated with lower child emotional and behavioral problems and higher child self-concept as reported on the puppet interview.

**P. 102. The Determinants of High School Completion Rate in Kentucky: A Multiple Regression Model**

**Crager** \**Ezra Dike, Dr. S. Ali Ahmadi, Mentor Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs*

This study uses data collected from the US Census Bureau , [thinkkentucky.com](http://thinkkentucky.com) and KYHealthFacts.org about each of Kentucky's 120 Counties to determine the relationship between high school completion rates by students and the students' environment as determined by dollars spent per student in each county, the density of single parent households in county, whether the county was wet, dry or moist (alcohol), poverty rates in county and finally student to teacher ratios in county.

**P. 103. Determinants of Heart Disease in Kentucky Counties: A Multiple Regression Study**

**Crager** \**Gregory Noe, Dr. S. Ali Ahmadi, Mentor Department of Accounting, Economics, and Finance, School of Business Administration, College of Business and Public Affairs*

The purpose of this study is to identify some of factors affecting prevalence mortalities due to heart disease in Kentucky. Using Multiple Regression and data from Foundation for a Healthy Kentucky ([kentuckyhealthfacts.com](http://kentuckyhealthfacts.com)), this study hypothesized Obesity lack of exercise and smoking to be factors significantly affecting the rate of death by heart disease. All these factors indicated significance effect in the rate of death.

## 2009-2010

# Recipients of Undergraduate Research Fellowships

Morehead State University supports the initiative for students to engage in research, scholarship, performance activities and creative works. Listed below are the 2009-2010 awardees and their mentors.

### COLLEGE OF BUSINESS AND PUBLIC AFFAIRS

<b>Student URF</b>	<b>Class</b>	<b>Department</b>	<b>Mentor (s)</b>
Amir Ahmadi*	SO	AEF	Thomas Creahan
Michael Fitzner*	JR	AEF	Ali Ahmadi
Erica Belmont*	SR	AEF	Janet Ratliff
Amy Appleman*	SO	MGMT/MKT	Ahmad Hassan
Sara Bradley*	SO	MGMT/MKT	Brian Whitaker
Brittany Hackworth	SR	MGMT/MKT	Michelle Kunz
Stephanie Teater*	JR	MGMT/MKT	Steve Chen
Ashley Adkins	FR	GVT/RA	Paul Steele
Eric Boos	SR	GVT/RA	Ric Caric
Rebekah Jackson*	SR	GVT/RA	William Green
Blake Bedingfield*	JR	IRAPP	Stephen Lange
Susan Brown*	SR	IRAPP	Brian Reeder
Dallas Hurley	JR	IRAPP	Paul Steele

### CAUDILL COLLEGE OF ARTS, HUMANITIES AND SOCIAL SCIENCES

<b>Student URF</b>	<b>Class</b>	<b>Department</b>	<b>Mentor (s)</b>
Abigail Brading*	JR	ART	Kira Campbell
Kendrick Holbrook*	SR	ART	Joy Gritton
Cecily Howell*	FR	ART	Jennifer Reis
Francis Krug*	SR	ART	Joy Gritton
Karri Smith*	SR	ART	Bobby Campbell
Gary Cornett	SR	COMM	Deborah Plum
Michelle Fiore*	SR	COMM	Ann Andaloro
Kristin Hausstein*	SR	COMM	Sylvia Henneberg
Ryan Andersons*	SR	ENG	Crystal Wilkinson
Sean Corbin*	JR	ENG	Chris Holbrook
Stacey Greene*	SR	ENG	Crystal Wilkinson
Theresa Lang	SR	ENG	Kathryn Mincey
Morgan Mullins	SR	ENG	George Eklund
Kevin Murphy*	JR	ENG	Glen Colburn
Dakota Thornberry*	SR	ENG	Layne Neeper
Mitchell Wilson*	JR	ENG	Kathryn Mincey
Susan Ahmadi*	FR	HIS	Kelly Collinsworth
Joshua Ingram*	SR	HIS	Alana Scott
Robert Kincaid	JR	HIS	Wendell O'Brien
Daniel Mattox*	JR	HIS	Karen Bardsley
Christopher Wiseman*	SR	HIS	Kris DuRocher
Holly Back*	SR	INT/IDS	Philip Krummrich
Lauren Decker*	SR	INT/IDS	John Secor
Kevin Callihan*	JR	MUS	Stacy Baker
Justin Croushore*	JR	MUS	William Mann
John Handshoe*	SO	MUS	Deborah Eastwood
Kaitlin Mansfield*	SR	MUS	Lori Baruth
Caitlin Pillow*	SR	MUS	June Grice

**COLLEGE OF EDUCATION**

<b>Student URF</b>	<b>Class</b>	<b>Department</b>	<b>Mentor (s)</b>
Brittany Herrera*	JR	CUR/INST	Kim Nettleton
Nikita Murphy*	SR	CUR/INST	Lesia Lennex
Tiffany Smith*	JR	EC,E&SE	Sarah Hawkins
Brooklyn Kendall*	FR	MG/SE	Rebecca Roach
Terri Rose*	FR	21 <sup>st</sup> CEN	Rebecca Roach
Amanda Faust*	JR	21 <sup>st</sup> CEN	Rebecca Roach

**COLLEGE OF SCIENCE AND TECHNOLOGY**

<b>Student URF</b>	<b>Class</b>	<b>Department</b>	<b>Mentor (s)</b>
Lauren Melzer	SR	AGR	Troy Wistuba
Moriah Penick*	FR	AGR	Rebecca Miculinich
Alecia Raymer	JR	AGR	Troy Wistuba
Jessica Robinette*	SR	AGR	Rebecca Miculinich
Latissa O’Cull*	SR	VET-TECH	Phil Prater
Jordan Wuthrich*	SR	VET-TECH	Kimberly Peterson
Alexia Callihan*	SR	BIO/CHEM	Allen Risk
Tyler Elam*	SR	BIO/CHEM	Janelle Hare
Alan Grubb	SR	BIO/CHEM	Allen Risk
William Hankinson*	JR	BIO/CHEM	Michael Fultz
Gavin Howington*	JR	BIO/CHEM	Janelle Hare
Britney Huron	SR	BIO/CHEM	Brian Reeder
Jacob Jordan*	JR	BIO/CHEM	Doug Dennis
Marisa Kamelgarn*	FR	BIO/CHEM	Geoffrey Gearner
Sam Kemmer*	JR	BIO/CHEM	Allen Risk
Ashley Loan	SR	BIO/CHEM	Craig Tuerk
Josie Maione*	JR	BIO/CHEM	Darrin DeMoss
Megan Minch	SR	BIO/CHEM	David Peyton
Brittany Moore*	JR	BIO/CMEM	Geoffrey Gearner
Logan Murphy*	JR	BIO/CHEM	David Saxon
Kristen Platt*	SR	BIO/CHEM	Geoffrey Gearner
Tiffany Stacy*	SO	BIO/CHEM	Doug Dennis
Jeffrey Wente	JR	BIO/CMEM	Allen Risk
Sara Wheeler*	JR	BIO/CHEM	Janelle Hare
Jodi Wilder*	SR	BIO/CHEM	Janelle Hare
Tabitha Aldridge	SR	ERTH/SS	Thomas Pannuti
Cara DeMoss	FR	BIO/CHEM	Michael Fultz
Jacob Burns*	JR	ERTH/SS	Elizabeth Roland
Brandon Molton*	SO	ERTH/SS	Ben Malphrus
Tyler Rose*	SO	ERTH/SS	Bob Twiggs
Laura Stacy*	SO	HWHP	Gina Blunt/ Jennifer Dearden
Jared May*	SR	IET	Nilesh Joshi
James Adkins	SR	MCSP	Jennifer Birriel
Evan Boyd*	SO	MCSP	Christopher Schroeder
Joshua Bradley*	SO	MCSP	Sherif Rashad
Sarah Burton	FR	MCSP	Kent Price
Christopher Estes*	SO	MCSP	Sherif Rashad
Michael Fantini	FR	MCSP	Biswajit Panja
James Gibbs	SR	MCSP	R. Duane Skaggs
Douglas Haase	JR	MCSP	Jennifer Birriel

Julie Lang*	SO	MCSP	Dora Ahmadi
Lauren May*	SO	MCSP	R. Douglas Chatham
Brian Salyer*	SR	MCSP	Robin Blankenship, R. Duane Skaggs, R. Douglas Chatham
Jeffery Dobson	SR	PSY	Ilsun White
Katelyn Fugate*	JR	PSY	Shari Kidwell
T. Zach Goble*	SR	PSY	Laurie Couch
Kelly Gruber*	JR	PSY	Sean Reilley
Sydney Howard*	JR	PSY	Laurie Couch
Medina Jackson*	SO	PSY	Sean Reilley
Britney Maynard	JR	PSY	Shari Kidwell
Shayla Miller	JR	PSY	David Butz

#### **KENTUCKY CENTER FOR TRADITIONAL MUSIC**

<b>Student URF</b>	<b>Class</b>	<b>Department</b>	<b>Mentor (s)</b>
Kyle Burnett	SR	KCTM	Jesse Wells
Adam Ison	SR	KCTM	Jesse Wells
John Rodgers	FR	KCTM	Jesse Wells
Kristen Smith	SR	KCTM	Jesse Wells

**\*presenting at the 2010 Celebration of Student Scholarship**

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