ANNUAL REPORT OF
UNDERGRADUATE RESEARCH FELLOWS

August, 2014 to May, 2015

COLLEGE OF BUSINESS AND PUBLIC AFFAIRS

SCHOOL OF BUSINESS ADMINISTRATION

Becknell, Allison

Major:
Accounting

Faculty Mentor:
Johnathan Nelson

Research/Project Title:
Leveraging Social Media to Support Business Education

Project Abstract/Summary:
The use of social media has grown significantly over the past decade. Student familiarity with social media creates an opportunity to leverage this knowledge for learning class content and collaborating with other students in face-to-face and online courses. As such, instructors have begun to identify opportunities for integrating social media into their teaching. Using social media facilitates a number of beneficial student outcomes, including active learning, networking, and student collaboration. However, not all social media are equally advantageous and the great number of social media can make it difficult to determine what social media to use in instruction. There is a growing body of research examining the strengths of social media supporting learning objectives. This presentation will provide an overview of this research on the benefits and limitations of social media for student learning with an emphasis on business education. Before integrating social media into their teaching, instructors must weigh these benefits and limitations to decide how to best use social media in their courses. By understanding the strengths and weaknesses of different social media, instructors can better choose between the social media options available. A study was also designed to investigate the use of social media based assignment in management courses to be carried out during the 2014-2015 academic year.

Project Dissemination:

Poster Presentation:
Beckness, A., & Nelson, J.K. (2014). Leveraging Social Media to Support Business Education. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
N/A

Post-Graduation Plans (Seniors only):
N/A

Coffey, Waylan

Major:
Management/Art

Faculty Mentor:
Janet Ratliff

Research/Project Title:
What Can Be Learned From Students Who Are Studying a Targeted International Curriculum and Traveling Abroad?

Project Abstract/Summary:

This pilot study involves a preliminary evaluation of pre/post surveys, to analyze international curriculum and perspectives related to an international experience in Italy and Greece. Data for the study was gathered from Morehead State University students taking an international business course and traveling abroad in the spring of 2014. The study was conducted to effectively measure and assess an international course curriculum and its overall effect on student knowledge and perceptions about traveling abroad. Students were exposed to an international curriculum related to Italy and Greece that concluded with a two-week international experience in these countries after the completion of the course itself. The purpose of this study is to ultimately determine whether or not college students changed their knowledge of an perceptions about traveling abroad after being exposed to an appropriate curriculum and an international experience. MSU Undergraduate Research Fellowship sponsored this research.

Project Dissemination:

Coffy, Waylan and Janet R. Ratliff (2015). What Can Be Learned From Students Who Are Studying a Targeted International Curriculum and Traveling Abroad? Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans (Seniors only):

N/A

Davis, Tyler

Major:

Sport Management

Faculty Mentor:

Steve Chen

Research/Project Title:

Impact of Previous Playing Experience in Coaching Basketball

Project Abstract/Summary:

Numerous professions, such as law, education/teaching, business and medical practices, have a specific academic discipline and curriculum that train and prepare their future professionals ready for their career. However, in the field of sport coaching, the importance of past playing experience alone seems to outweight any other forms of educational training. This study examined the impact of professional playing experience on the success and hiring of NBA head coaches. Career coaching records of 130 Easter Conference NBA coaches from 1980 to 2013 were analyzed. The statistics revealed that 47% of coaches were former NBA players. Coaches who are former NBA players (n = 61) have a slightly higher winning percentage (about 2%) than the non-player coaches (n = 69). Despote the winning percentages of the two groups of coaches being similar, each former-player with a coaching position got to coach at least 100 games more than a non-player coach on average. Coaches with a better playing career did not exhibit a higher winning percentage than those non-players did. The results seemed to insinuate that there is a need for athletic administrators to evaluate the coaching candidates based on educational background and professional training instead of playing experience alone.

Project Dissemination:

Davis, T., Chen, S., Smith, C., & Walker, B. (2015). Impact of Previous Playing Experience in Coaching Basketball. Paper presented at the 10th Annual Sport Psychology Forum, Bowling Green, KY, April.

Davis, T., Chen, S., Smith, C., & Walker, B. (2015). Impact of Previous Playing Experience in Coaching Basketball. Poster presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans (Seniors only):

N/A

SCHOOL OF PUBLIC AFFAIRS

Burns, Donald J.

Major:
Public Policy

Mentor:
Christine Lange

Research/Project Title:
Investigating County-Level Economic Diversity in Eastern Kentucky

Project Abstract/Summary:
Since 1965, the Appalachian Regional Commission (ARC) has worked to promote sustainable local economies throughout the region. However, despite these efforts, many counties, especially in eastern Kentucky, remain economically distressed. In response, the ART has increasingly focuses on fostering economic diversity to help improve county economic conditions, as greater diversity typically acts to buffer local economies in the face of economic downturns. This study examined economic diversity levels for selected counties in eastern Kentucky spanning a range of economic conditions. County economic diversity levels (industrial, functional, and occupational) for 2012 were obtained from the ARC's Economic Diversity Webtool. Data from the ARC's Distressed Counties program was used to determine county economic condition (status) between 1960 and 2012. Overall, results indicate that counties experiencing more economic progress over this period have somewhat greater economic diversity levels that other counties; however, no clear relationship exists between economic status and economic diversity for the study area. Additional data and in-depth case studies are needed to provide improved insights into the complex problem of persistently distressed counties in eastern Kentucky, and to assist strategic community planning efforts to develop more robust local economies.

Project Dissemination:
Burns, Donald J. (2015). Investigating County-Level Economic Diversity in Eastern Kentucky, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
Will graduate in December 2015.

Hutchinson, Madyson

Major:
Government

Mentor:
Michael Hail

Research/Project Title:
Federalism and the Regulation of Sin: Intergovernmental Regulatory Power and the Constitution

Project Abstract/Summary:
This study examines the changes to sovereignty for the States as the nation transitioned to a regulatory state from a period of decentralized dual federalism to the present co-optive federalism. Specifically, Madyson will be looking at federalism and the regulation of sin at the local level and then working through the state and national levels. Federalism and the regulation of sin implies governments systematically removing and instituting certain moral practices that they deem to be intolerable or allowable. This research will discuss moral issues, such as alcohol sales and use that seem to make their way into the culture of our cities, counties, states, and nation. Central questions of government authority and constitutionality for regulation of moral issues under U.S. federalism will be examined.

Project Dissemination:
Research findings will be submitted for presentation at the Kentucky Political Science Association and Posters-at-the-Capitol, as well as the Annual Celebration of Student Scholarship.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
N/A

Rice, Katherine

Major:

Government

Mentor:

William Green

Research/Project Title:

Boutique Wineries and State Liquor Regulation in a Time of Market Consolidation

Project Abstract/Summary:

The Twenty-first Amendment (1933) federalized liquor regulation with the national government licensing interstate transportation and the states licensing the wholesale and retail trade. This research will study the wine market since the U.S. Supreme Court's decision in Granholm v. Heald (2005) forbad states from discriminating in favor of their in-state boutique wineries and against boutique wine produced out-of-state. This research will address the question: how have winery, wholesaler, and retailer consolidation, state liquor regulation changes, and federal court decisions effected boutique wineries and their customers? To answer this question, this research will use wine producer, wholesaler, and retailer publications, state government liquor regulations, federal court decisions, and law review articles.

Project Dissemination:

Katherine Rice presented her research at the 2015 Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Katherine Rice participated in the Summer 2014 Canadian Parliamentary Internship Program and interned in the office of a Member of Parliament (MP). As an intern, she answered constituency mail; assisted in writing and editing materials sent to the MP's riding (district); conducted research on policy issues, and drafted speeches for her MP.

Post-Graduation Plans – Seniors Only:

Katherine Rice plans to attend law school in the Fall 2016. Her receipt of the MSU Undergraduate Research Fellowship has materially enhanced her legal research skills, her competitiveness in being admitted to the law school of her choice, and her receipt of a law school scholarship.

Skaggs, Clay

Major:

Government

Mentor:

Jonathan Pidluzny

Research/Project Title:

An Examination of U.S. Foreign Policy toward the Middle East after the Arab Spring

Project Abstract/Summary:

The United States stands as the only global superpower in the post- Cold War era and benefits significantly from its dominant position in the international system. In order to preserve its position, regional stability in areas of concern to U.S. interests, and the prevention of the rise of regional hegemonic powers, is vitally important. The Middle East – an area beleaguered by disorder and rich in natural resources – must therefore remain a focus of U.S. foreign policy. Unfortunately, the region is coming apart today. Many of the states that showed potential for liberalization in the Arab Spring, such as Egypt, have reverted to their illiberal and autocratic tendencies. Iran, a key energy producer and aspiring nuclear power, continues to project influence beyond its borders in ways that undermine U.S. interests. The meteoric rise of the Islamic State threatens to plunge the entire region into disarray. This project, supported by the Office of Undergraduate Research, argues that the U.S. must combat these challenges by empowering allies in the region, sustaining the free flow of energy into global markets, and thwarting the rise of potential regional hegemonic powers (Iran and the expansionist Islamic State, in particular), without exhausting its power and influence.

Project Dissemination:

Clay Skaggs (2015). An Examination of U.S. Foreign Policy toward the Middle East after the Arab Spring. Presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Mr. Skaggs plans to attend law school.

Spencer, Tyler

Major:

Government/History

Mentor:

Jonathan Pidluzny

Research/Project Title:

The Fiscal Promise and Public Cost of Increasing Access to Preventative Medicine in the United States

Project Abstract/Summary:

This research project explores the effect of the Affordable Care Act (ACA) on the utilization rates of preventive medical services recommended by the United States Preventive Task Force and CDC. The ACA mandates that compliant private health insurance plans, along with Medicare and Medicaid, cover specific preventive services at no cost to patients. Copays and deductibles have been removed from these services in order to promote their use, and, hopefully, to save money in the long run. In order to determine whether this strategy will have a significant effect on the utilization rates, I have reviewed literature, focusing on pertinent case studies, and compared utilization rates of preventative services among states that had different Medicaid benefits before passage of the ACA. Findings are supplemented by interviews with members of local health care organizations in the region, specifically St. Claire Medical Center. My research has produced contradictory results, especially between the literature and interactions with local healthcare administrators. The preliminary consensus reached by the project, generously supported by the Office of Undergraduate Research, is that while the elimination of copays for preventive services is a step in the right direction, a greater focus on education and implementation is required.

Project Dissemination:

Tyler Spencer (2015). The Fiscal Promise and Public Cost of Increasing Access to Preventative Medicine in the United States. Presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Mr. Spencer plans to continue his research this summer to prepare the manuscript for submission to an academic journal.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Mr. Spencer has been admitted to the MPA at Morehead State University.

Syck, Jeffrey T.

Major:

Government/History

Mentor:

Jonathan Pidluzny

Research/Project Title:

FDR, the U.S. Constitution, and the Rise of the Populist Presidency

Project Abstract/Summary:

The American presidency is a continually evolving office. Each man who holds it changes it in his own way, sometimes with lasting consequences for the country's political system. Of all the presidents, Franklin Roosevelt was perhaps the greatest contributor to the creation of the modern presidency. He helped to realize Woodrow Wilson's progressive vision for the institution, enhancing the president's policymaking role and establishing him as undisputed leader of his party. This presentation examines the reasons FDR sought to transform the office and the factors that allowed him to achieve it. This project, generously supported by the Honors Program at Morehead State University, examines the original design of the institution, the origins of the modern presidency in the political theory of Woodrow Wilson, and the realization of the transformation in the politics of Franklin D. Roosevelt.

Project Dissemination:

Jeffrey Tyler Syck (2015). FDR, the U.S. Constitution, and the Rise of the Populist Presidency. Presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Merit Award, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Post-Graduation Plans – Seniors Only:

N/A

Taulbee, Ashley

Major:
Government

Mentor:
Michael Hail

Research/Project Title:
Federalism and Intergovernmental Relations: Examining the Organization of the State Department of Local Government and the Relationship with Local Government Relations

Project Abstract/Summary:
Kentucky re-classified local governments in the last session of the General Assembly. This continues a trend whereby Kentucky has experienced several changes in governmental policies and infrastructure and how the executive branch manages local government relations. This research seeks to explore the effects of these changes and the "home rule" approach in the recent case. These will be assessed comparatively within the U.S. system of federalism.

Project Dissemination:
Research findings were presented at the Annual Celebration of Student Scholarship.

Awards and/or Honors:
Won the Rifai Award at the Kentucky Political Science Association.

Post-Graduation Plans – Seniors Only:
Attend graduate school in Government.

Woodall, Sarah

Major:
Government

Mentor:
Michael Hail

Research/Project Title:
Over Time: Simultaneous Progression and Dormancy in Similar Kentucky Communities

Project Abstract/Summary:
Within the past several decades, Kentucky has experienced several changes in governmental policies and infrastructure. These changes have led to an increase in revenue, tourism, and overall productivity in several communities, whereas other communities have remained in a state of inaction, or even seen a decline in the aforementioned areas. This research seeks to explore these differences, focusing on aspects such as staffing of local government buildings, county-wide infrastructure, and political contrasts, in an effort to determine what has encouraged the progress in some communities, and what could be changed to promote growth in struggling or inactive regions. These will be assessed comparatively within the U.S. system of federalism.

Project Dissemination:
Research findings were delivered for presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
N/A

Yoder, Ryan

Major:
Government/History

Mentor:
Jonathan Pidluzny

Research/Project Title:
Countercyclical Spending, Fiscal Responsibility and the American Recovery and Reinvestment Act of 2009

Project Abstract/Summary:

This project evaluates the American Recovery and Reinvestment Act of 2009 (ARRA) – popularly known as “The Stimulus” – by analyzing its economic impact in three important sectors: education, healthcare, and infrastructure. How did the ARRA prioritize its spending? Which sectors of the economy saw the highest rates of job creation, which received the most government funding, and how was spending distributed in geographical terms? The project also examines the broader impact of the ARRA on the US economy in terms of its impact on interest rates, GDP growth, and debt accumulation. The project, generously supported by an Undergraduate Research Project, concludes with an assessment of the viability of Keynesian-style counter-cyclical spending in the 21st century.

Project Dissemination:

Ryan Yoder (2015). Countercyclical Spending, Fiscal Responsibility and the American Recovery and Reinvestment Act of 2009. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Ryan Yoder (2015). Countercyclical Spending, Fiscal Responsibility and the American Recovery and Reinvestment Act of 2009. Poster presentation, SPA’s Annual Student Research Showcase, Morehead State University, Morehead, KY, May.

Awards and/or Honors:

Outstanding Merit (Best Poster) Award, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Note: Mr. Yoder is not applying for a second year, continuation, of his URF because he has secured a semester-long internship in Washington, D.C.

Post-Graduation Plans – Seniors Only:

N/A

CAUDILL COLLEGE OF ARTS, HUMANITIES, AND SOCIAL SCIENCES

DEPARTMENT OF ART AND DESIGN

Baggett, Abigail

Major:
Art

Mentor:
Joy Gritton

Research/Project Title:
Creating the Mountain to Mountain Children's Book

Project Abstract/Summary:
This project represents a collaboration between the Haldeman After School Program, the MSU Appalachian Studies interdisciplinary program, and the University of Kentucky Appalachian Center to produce a bilingual children's book resulting from an exchange between children participating in the after school program and those attending school in Rumi Cruz, Ecuador. The book is designed to help children in Andean Ecuador and Appalachian Kentucky learn about another culture and language, and includes original artwork, the children's drawings and letters, easy-to-read text, and learning activities. Ultimately the goal is to foster mountain-to-mountain cross-cultural understanding and friendships. This research was funded with an Undergraduate Research Fellowship.

Poster Dissemination:
Poster, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2015.
The Mountain to Mountain children's activity book will be published in summer 2015, and will be distributed to children in eastern KY and Rumi Cruz, Ecuador.

Awards and/or Honors:
Best in Show, Deconstructing Dreams, MSU Senior Juried Art Exhibition, Claypool-Young Gallery, Morehead, KY, Juried, 2015
Inscape Art and Literary Magazine, Juried, Morehead, KY, 2015
First Place in 3D Category, Mount Sterling Regional Art Show, Gateway Regional Art Center, Mount Sterling, KY, juried 2014
Inscape Art and Literary Magazine, Juried, Morehead, KY, 2014.

Post-Graduation Plans – Seniors Only:
Abigail will be co-owner and principal artist of her own graphic design and children's book illustration business.

Bauer, Alex

Major:
Art/Teaching (P-12)

Mentor:
Jeanne Petsch

Research/Project Title:
Substance Abuse and Addiction Education for At-Risk Students

Project Abstract/Summary:
This project involved instituting a 12-week program at the Bluegrass Discovery Academy where students were welcomed to talk honestly with two undergraduate research fellows about substance abuse and addiction. The students received weekly sessions where they were given information about different substances, how to handle addiction, and the effects addiction can have on personal relationships. The main goal of this program was to provide students with the information they needed about harmful substances and the negative effects they cause on their bodies and relationships, while also providing the support they need to face these addictions head-on. Throughout the program, multiple types of media and technologies were used to present effective messages to all students. Activities and lesson plans were constructed weekly to be sure that all needed information was provided throughout the program. The weekly sessions encouraged students to talk openly about their experiences and facilitated one-on-two personal conversations with the fellows. The program also allowed the fellows to understand the personal context of each student, which enabled trusting relationships to build throughout the program.

Project Dissemination:
Student, Margaret Horton. Student, Alex Bauer. (April, 2015). Substance Abuse and Addiction Education for At-Risk Students, oral presentation. Celebration of Student Scholars, April 2014.

Awards and/or Honors:

2014/2015 Outstanding Senior in Art and Design.

Post-Graduation Plans – Seniors Only:

Seek P-12 Art Teaching position or graduate school.

Blanton, Mary

Major:

Studio Art

Mentor:

Jennifer Reis

Research/Project Title:

Arts Programming Administration: Management, Logistics, Design, and Promotion

Project Abstract/Summary:

The project has involved all aspects of professional arts programming management; including exhibition logistics in the curatorial, registration, exhibition design and installation areas; special events and hospitality; art programming for educational and cultural purposes (artist lectures, workshops, forums, art sales); and marketing/public relations for all gallery programming. Fall 2014 arts programming includes national juried group exhibitions and student-focused arts activities like the annual Halloween Costume Contest and Rocky Horror Picture Show Screening, and worked in tandem with Cecily Howell on the management and promotion of the fourth annual MSU-student Craft Bizarre (which resulted in over $4,000 in student art and craft sales in 2014). Ms. Blanton's work has been primarily focused on the administrative end of arts programming, including exhibition logistics/paperwork organization, document generation, event photographic documentation, label design, and artwork handling/packing/shipping/documenting/installation.

Project Dissemination:

Exhibitions and programming have been presented in the Claypool-Young Gallery and Strider Gallery in the Claypool-Young Art Gallery serving a local and regional audience. Special events took place during each exhibit including opening receptions and visiting artists. Publicity and exhibit reviews will be at the local and regional levels. Ms. Blanton presented at the spring MSU Showcase of Student Scholarship, and her exhibition documentation photography is published on the Claypool-Young Art Gallery's Facebook page.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Ms. Blanton intends to pursue an entry level position in an arts non-profit organization in addition to running her own small business focuses on event and portrait photography.

Bridges, Grant

Major:

Art Education

Mentor:

Jeanne Petsch

Research/Project Title:

Rowan County Alternative High School Visual Art Enrichment Program

Project Abstract/Summary:

The goal of this project included developing curriculum for a 12-week art program for middle school students at the Bluegrass Discovery Academy (Rowan County Alternative School), serving as a lead student-teacher, and creating a photographic/narrative documentary of the program during the Spring 2014 semester. Curriculum emphasized 1) the development of student's awareness of the world and of self, 2) exposure to a variety of art materials and processes, 3) the creation of inventive and unique art objects. A reflection journal was kept to document students' experiences, students' development, and observations made by the researcher. Photographs of students creating artwork and their final projects provided further documentation of students' expressions of their experiences. Art classes were held on Thursday afternoons during the Spring 2014 semester. This research was supported by the MSU Center for Regional Engagement Undergraduate Fellowship.

Project Dissemination:

Mr. Bridges gave an oral presentation at the Celebration of Student Scholarship. Mr. Bridges went over project materials with staff at the Bluegrass Discovery Academy and with fellow art education students at Morehead State University.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Mr. Bridges plans to apply for Art Education positions in the state of Kentucky while also applying to graduate school.

Burns, Heather

Major:

Art Education

Mentor:

Joy Gritton

Research/Project Title:

Art after Hours: Learning to Work Together Through Art

Project Abstract/Summary:

This project focused on building group work and social literacy skills for students participating in the Haldeman after School Program. These skills were developed through a variety of art projects throughout the year. During these art projects, students worked in groups and/or shared materials. The students had to work together and through this learned valuable and necessary life skills, while enjoying a creative outlet. The project fostered an interest in the arts, and resulted in improved student behavior.

The Haldeman after School Program offers a safe, child-centered, nurturing after school enrichment program for elementary students Monday through Thursday during the months of March, April, September, and October at the Haldeman Community Center. Participating children enjoy physical activities, a nutritious snack, a planned learning activity, and help with their homework and tutoring.

The Haldeman Community Center's mission is to provide a place for those in the community to meet for fellowship, to provide children with a safe haven away from drugs, to foster the dramatic and musical arts, by providing a place for their practice and performance and to help sustain and enhance the year-round economic, educational, recreational and social well-being of the community's residents.

Project Dissemination:

Burns, Heather (2015). Art after Hours: Learning To Work Together through Art, presentation, Appalachian Studies Association Conference, Johnson City, TN, March.

Burns, Heather (2015). Art After Hours: Learning To Work Together through Art, presentation, University of Kentucky Graduate Research Conference, UK, Lexington, KY, April

Burns, Heather (2015). Art After Hours: Learning To Work Together through Art, presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Busby, Kristin

Major:

Art

Mentor:

Joy Gritton

Research/Project Title:

Creating Cohesive Communities: Utilizing Public Artworks for Regional Development

Project Abstract/Summary:

The concept of employing the arts as an emerging force for community development in Appalachia was explored by first analyzing Northern Ireland's utilization of public art in their domestic "Peace through the Arts" programs; the resulting analysis was then applied to Appalachian communities primarily located in Eastern Kentucky. The connection between the two regions focuses on divisive imagery present in each culture and how public artworks are utilized to promote reconciliation.

Research was conducted in collaboration with a range of domestic and foreign individuals and organizations including the Braid Arts Center in Ballymena, Northern Ireland, the Arts Council of Northern Ireland, the Kentucky Foundation for Women, the Kentucky Arts Council, the Appalachian Regional Commission, and regional artists. The analysis was primarily focused on literature reviews and interviews.

The project has produced a framework of effective strategies for regional artists to collaboratively create public art pieces as a means of connecting and enhancing Appalachian communities. These effective strategies were collected from the Northern Ireland analysis and will be explored in future research.

Project Dissemination:

Busby, Kristin (2015). Creating Cohesive Communities: Utilizing Pubic Artworks for Regional Development, poster, Appalachian Studies Association Conference, Johnson City, TN, Marc.

Busby, Kristin (2015). Creating Cohesive Communities: Utilizing Public Artworks for Regional Development, poster, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Helton, Julieann

Major:

Art

Mentor:

Joy Gritton

Research/Project Title:

Designing on a Dime: Creating a Virtual Presence for Non-Profit Organizations

Project Abstract/Summary:

This project represents a collaboration between the Eastern Kentucky Arts Project (coordinated by Joy Gritton) and the Haldeman Community Center (project coordinator is RoseMary Johnson). and is an extension of a public relations campaign for the Haldeman After School Program that was conducted last year. The goal of this project was to design an interactive, community-friendly website for the Haldeman after School Program. Research was conducted to determine the most effective way to communicate the work and message of a non-profit organization to the community through an internet presence. Successful strategies were identified and an interactive website was designed. Preliminary designs were presented to the Haldeman Community Center board members for feedback and suggestions. The project concluded with the official launch of a website (haldemancommunitycenter.org) which can be utilized to further community awareness and support.

The Haldeman after School Program offers a safe, child-centered, nurturing after school enrichment program for elementary students Monday through Thursday during the months of March, April, September, and October at the Haldeman Community Center. Participating children enjoy physical activities, a nutritious snack, a planned learning activity, and help with their homework and tutoring.

The Haldeman Community Center's mission is to provide a place for those in the community to meet for fellowship, to provide children with a safe haven away from drugs, to foster the dramatic and musical arts, by providing a place for their practice and performance and to help sustain and enhance the year-round economic, educational, recreational and social wellbeing of the community's residents. They are located at 4399 Open Fork Road.

EKAP's mission is to serve educators, students, artists, community planners, and other interested individuals working to strengthen Eastern Kentucky communities through the arts. EKAP also assists in identifying service-learning venues for students seeking to support this mission.

This project has shown immediate and positive results. The website was designed and launched and it is used to promote the Haldeman Center's events and fundraisers, spread their message and work to the community, and inspire others to get involved with the Center. One of the biggest components of the Haldeman Center website is the oral histories section of the site. The area of the site features the oral history project conducted by Dr. Joy L. Gritton in which she interviewed members of the Haldeman Community. By having these interviews on the Haldeman site, visitors can learn more about the area's rich history.

Project Dissemination:

Helton, Julieann (2015). Designing on a Dime: Creating a Virtual Presence for Non-Profit Organizations, presentation, Appalachian Studies Association Conference, Johnson City, TN, March.

Helton, Julieann (2015). Designing on a Dime: Creating a Virtual Presence for Non-Profit Organizations, presentation, University of Kentucky Graduate Research Conference, Lexington, KY, April.

Helton, Julieann (2015). Designing on a Dime: Creating a Virtual Presence for Non-Profit Organizations, presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY.

The Haldeman Community Center website was launched and is fully operational (haldemancommunitycenter.org).

Awards and/or Honors:

Outstanding Sophomore Award for the Department of Art and Design.

Certificate of Merit for oral presentation at Morehead State University's Celebration of Student Scholarship, April, 2015.

Post-Graduation Plans – Seniors Only:

N/A

Horton, Margaret

Major:

P-5 & LBD

Mentor:

Jeanne Petsch

Research/Project Title:

Substance Abuse and Addiction Education for At-Risk Students

Project Abstract/Summary:

This project involved instituting a 12-week program at the Bluegrass Discovery Academy where students were welcomed to talk honestly with two undergraduate research fellows about substance abuse and addiction. The students received weekly sessions where they were given information about different substances, how to handle addiction, and the effects addiction can have on personal relationships. The main goal of this program was to provide students with the information they needed about harmful substances and the negative effects they cause on their bodies and relationships, while also providing the support they need to face these addictions head-on. Throughout the program, multiple types of media and technologies were used to present effective messages to all students. Activities and lesson plans were constructed weekly to be sure that all needed information was provided throughout the program. The weekly sessions encouraged students to talk openly about their experiences and facilitated one-on-two personal conversations with the fellows. The program also allowed the fellows to understand the personal context of each student, which enabled trusting relationships to build throughout the program.

Project Dissemination:

Margaret Horton, Alex Bauer (2015). Substance Abuse and Addiction Education for At-Risk Students, oral presentation. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Madden, Tara

Major:

Studio Art/Spanish

Mentor:

Jennifer Reis

Research/Project Title:

ArtWorks: Visual Arts Programming, Products, and Promotion in Non-Profit and For-Profit Contexts

Project Abstract/Summary:

The project involved aspects of professional arts programming management; including exhibition logistics and design; special events and hospitality; art programming for educational and cultural purposes (artist lectures, workshops, forums, art sales); and marketing/public relations for all gallery programming. 2014/15 arts programming included national juried and group exhibitions; three student art exhibitions (high school, MSU sophomore, MSU senior); the annual faculty exhibition; and a regional summer exhibition specific to contemporary textile art from SE regional (Stitch). Ms. Madden was responsible for organizing all the exhibition submissions for the exhibition STITCH, including a juror's PowerPoint presentation and associated Excel worksheet, and was involved in planning and organization of student-focused arts activities like the annual Halloween Costume Contest and Rocky Horror Picture Show Screening, and worked in tandem with Cecily Howell on the management and promotion of the fourth annual MSU-student Craft Bizarre (which resulted in over $4,000 in student art and craft sales in 2013).

Project Dissemination:

Exhibitions and programming have been presented in the Claypool-Young Gallery and Strider Gallery in the Claypool-Young Art Gallery serving a local and regional audience. Special events took place during each exhibit including opening receptions and visiting artists. Publicity and exhibit reviews will be at the local and regional levels. Ms. Madden presented at the spring MSU Showcase of Student Scholarship.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Sheehan, Angela

Major:

Art

Mentor:

Seth Green

Research/Project Title:

Ceramics Facility Management and Kiln Maintenance/Firing

Project Abstract/Summary:

This research project will explore various facility management skills. Under the direction of Mr. Green, Ms. Sheehan will learn and perform the following tasks; mixing studio clays, slips, and glazes; complete raw material inventories and compile material orders; load and fire electric and gas kilns; replace kiln elements and thermocouples as needed, and other related tasks.

Project Dissemination:

Student did not complete fellowship. This fellowship was transferred to Jennifer White.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Shepherd, Sarah

Major:

Psychology

Mentor:

Joy Gritton

Research/Project Title:

Meditation and Mindfulness Practice for Children: Learning to De-Stress at the Haldeman Community Center After School Program

Project Abstract/Summary:

Children often have stress in their everyday lives, and some must cope with particularly difficult circumstances on a daily basis. Without access to healthy coping strategies, success at school, behavior, and the ability to have positive relationships with others may be compromised. This project introduced basic meditation and mindfulness techniques to children participating in the Haldeman Community Center After School Program. These techniques will be one component of varied efforts to create a trauma-sensitive, supportive environment for learning, growing, and playing at the Haldeman Center. In preparation for this work, Shepherd researched the educational impacts of trauma and stress, and investigates initiatives to incorporate basic meditation and mindfulness techniques in school settings.

Project Dissemination:

Shepherd, Sarah (2015). Meditation in the Holler, presentation, University of Kentucky Graduate Research Conference, University of Kentucky, Lexington, KY, April.

Shepherd, Sarah (2015). Meditation in the Holler, presentation, Appalachian Studies Association Conference, Johnson City, TN, April.

Shepherd, Sarah (2015). Meditation in the Holler, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

White, Jennifer

Major:
Psychology
Mentor:
Seth Green
Research/Project Title:
Project: Ceramics Facility, Management and Kiln Maintenance/Firing
Research: Gas Reduction Kiln Firing
Project Abstract/Summary:
This research project explored various ceramics facility management skills.
Under the direction of Mr. Green, Mrs. White learned to perform the following tasks: mixing studio clays, slips, and glazes; complete raw material inventories and compile material orders; load and fire electric and gas kilns; replace kiln elements and thermocouples, take professional photos of finished pieces as well as many other related tasks.
Project Dissemination:
Mrs. White prepared a poster and presented her findings and experiences at the Morehead State University Celebration of Student Scholarship, Morehead, KY, April.
Awards and/or Honors:
Morehead State University Celebration of Student Scholarships Merit Award.
Post-Graduation Plans – Seniors Only:
N/A

DEPARTMENT OF COMMUNICATION, MEDIA, AND LEADERSHIP STUDIES

Brumback, Patrick

Major:
Convergent Media
Mentor:
Ann Andaloro
Research/Project Title:
Hear Me Roar: The Lives and Issues of Modern Women (a bi-monthly television program on MSU-TV).
Project Abstract/Summary:
Patrick Brumback produced and wrote MSU television program segments for Hear Me Roar. In this position he was mentored as a television producer, writer, and health advocate. He produced a spotlight segment on music.
Production Dissemination:
The programming that Patrick produced and wrote was aired on MSU-TV during the Fall 2014 semesters. Hear Me Roar is available to unlimited potential viewers online through MSU's website. We presented a panel on women's health for the Kentucky Communication Association Conference in fall of 2014. His work on women in music was presented at the Appalachian studies conference in spring 2015.
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

Hammond, Pamela Shay

Major:

Multimedia Production

Mentor:

Jeffrey Hill

Research/Project Title:

Social Media Networking
The Video Vault – The Kentucky Edition
2014-15 Morehead Film Series Event Posters

Project Abstract/Summary:

Production work requires the wearing of multiple hats at multiple times. Ms. Hammond worked on 3 production projects, but concentrated on several efforts to contact alumni of the production program. Ms. Hammond used her web savvy to help create social media pages for the department's production area and assist in tracking graduates, with the hope of creating a social media community of production students and alumni.

Multiple graduates were contacted (over 100).

Eight Video Vault Kentucky Edition programs were created.

Miss Hammond also created three posters for Film Series events.

Production Dissemination:

Oral presentation at MSU Celebration of Student Scholarship.

Production work and social media or "so-so" media.

Pamela Shay Hammond, Mr. Jeffrey Hill Mentor, Department of Communication, Media, and Leadership Studies, Caudill College of Arts, Humanities, and Social Sciences

KETKY broadcast June/July 2015.

Awards and/or Honors:

The program will be broadcast primetime, Sunday nights at 8:00 p.m.

Post-Graduation Plans – Seniors Only:

Independent contractor for web design.

Mathews, Alexis

Major:

Convergent Media

Mentor:

Ann Andaloro

Research/Project Title:

Hear Me Roar: The Lives and Issues of Modern Women – a bi-monthly television program on MSU-TV

Project Abstract/Summary:

Alexis Mathews produced and wrote MSU television program segments for Hear Me Roar. In this position she was mentored as a television producer, writer, and hostess. She produced a segment that focused on the MSU theatrical production of Cleaning Closets. The videotaped production that Alexis produced was posted on YouTube. This was an accomplishment because all but one of the performances were cancelled due to bad weather. Alexis' work will provide others an opportunity to see the theatrical production. Segments of her work on the Cleaning Closets video were presented at the Celebration of Student Scholarship.

Project Dissemination:

The programming that Alexis helped produce and write was aired on MSU-TV during the Spring 2015 and Fall 2014 semesters. Hear Me Roar is available to unlimited potential viewers online through MSU's website. The program provided the audience an opportunity to gain a broader understanding of gender issues. The program segments she produced will be submitted to numerous college video award competitions including the Academy of Television Arts and Science College Emmy Awards and the NBS Student Video Awards. Some of the segments Alexis produced were presented at the Kentucky Communication Association Conference in fall of 2014.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Morrill, Samantha

Major:
Convergent Media Area

Mentor:
Stacy Baker/Deborah Eastwood

Research/Project Title:
Music University Social Media Marketing: Analyzing Changing Trends from Existing Traditional Media to Rapidly Changing Social Media

Project Abstract/Summary:
Music Schools at the University have dramatically changed their marketing approach with the advent of new forms of social media. Many schools are now creating videos advertising their programs with the personal approach of professors giving information. This research will look at what advertising videos currently exists for Music Schools. We'll compare top university programs. Many major Universities have Marketing and Publicity personnel. How to create a Marketing Plan for the Music School? Plan is to create this type of advertising without increasing or establishing funding. Significantly increase enrollment by researching information marketing used by top tier music universities in the U.S. and Internationally. Will create new video commercials for the music department Master of Music Program based on this research and track number of views to see if this new type of marketing will make an impact.

Project Dissemination:
Current Climate: Advertising Morehead State University's Programs, Campus and Teachers on a Digital Platform, research paper.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
N/A

Nelson, Rickki

Major:
Convergent Media

Mentor:
Ann Andaloro

Research/Project Title:
Hear Me Roar: The Lives and Issues of Modern Women – a bi-monthly television program on MSU-TV

Project Abstract/Summary:
Rickki Nelson helped to produce and write MSU television program segments for Hear Me Roar. In this position she was mentored as a television producer and writer. She also produced a spotlight segment on music. She presented excerpts of the musical spotlight segments for the Celebration of Student Scholarship.

Project Dissemination:
The programming that Rickki helped to produce and write was to be aired on MSU-TV during the Spring 2015 semester. Hear Me Roar is available to unlimited potential viewers online through MSU's website. The program provided the audience an opportunity to gain a broader understanding of issues important to women. The program segments she produced will be submitted to numerous college video award competitions including the Academy of Television Arts and Science College Emmy Awards and the NBS Student Video Awards. Her work on women in music was presented at the Appalachian Studies Conference in spring 2015.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
N/A

Padgett, Ryan

Major:
Multimedia Production

Mentor:
Jeffrey Hill

Research/Project Title:
The Video Vault: The Kentucky Edition

Project Abstract/Summary:

The Video Vault: The Kentucky Edition: In eight episodes, the KET audience is shown an older, obscure film with a connection to their own state, such as a director or star from Kentucky. The program is hosted by Professor Jeffrey Hill, who has introductory and concluding segments that give context to the film's place in history and relevance to Kentuckians today.

Project Dissemination:

Meet John Doe; Gang Busters (short)
02:25:50 | #308 | First Aired: July 4, 2015
KETKY: Wednesday, July 8 at 12:00 AM ET
Lady Gangster; The Phantom Creeps (short)
01:25:15 | #305 | First Airs: July 11, 2015
KETKY: Saturday, July 11 at 2:00 PM ET
KETKY: Sunday, July 12 at 8:00 PM ET
KETKY: Wednesday, July 15 at 12:00 AM ET
KETKY: Sunday, August 30 at 8:00 PM ET
KETKY: Saturday, September 5 at 2:00 PM ET
Smash-Up: Story of a Woman; Cops with Buster Keaton (short)
01:55:50 | #306 | First Airs: July 18, 2015
KETKY: Saturday, July 18 at 2:00 PM ET
KETKY: Sunday, July 19 at 8:00 PM ET
KETKY: Wednesday, July 22 at 12:00 AM ET
Penny Serenade
01:55:50 | #307 | First Airs: July 25, 2015
KETKY: Saturday, July 25 at 2:00 PM ET
KETKY: Sunday, July 26 at 8:00 PM ET
KETKY: Wednesday, July 29 at 12:00 AM ET
Too Late for Tears; Life with Elisabeth (short); W.C. Fields (short)
01:55:15 | #301 | First Aired: June 7, 2015
KETKY: Sunday, August 2 at 8:00 PM ET
KETKY: Wednesday, August 5 at 12:00 AM ET
KETKY: Saturday, August 8 at 2:00 PM ET
The Attack of the Killer Shrews; Lemonade Stand (short)
01:23:26 | #302 | First Aired: June 14, 2015
KETKY: Sunday, August 9 at 8:00 PM ET
KETKY: Wednesday, August 12 at 12:00 AM ET
KETKY: Saturday, August 15 at 2:00 PM ET
This Is The Army
01:56:50 | #303 | First Aired: June 21, 2015
KETKY: Sunday, August 16 at 8:00 PM ET
KETKY: Wednesday, August 19 at 12:00 AM ET
KETKY: Saturday, August 22 at 2:00 PM ET
Strange Love of Martha Ivers
01:58:50 | #304 | First Aired: June 28, 2015
KETKY: Sunday, August 23 at 8:00 PM ET
KETKY: Wednesday, August 26 at 12:00 AM ET
KETKY: Saturday, August 29 at 2:00 PM ET

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Work in the production industry.

DEPARTMENT OF ENGLISH

Allen, Zachary C.

Major:

Secondary English Education

Mentor:

Alison Heron Hruby

Research/Project Title:

The Potential for Using Small-Group, Peer-Led Discussions to Foster Literary Analysis Skills among Struggling High School Readers (IRB Protocol #14-09-30

Project Abstract/Summary:

This study was the continuation of service learning project in which Dr. Hruby was already involved, with the addition of a research component. The study took place over four months, in a high school. The participants were tenth graders who were identified as struggling readers on standardized tests of reading progress and placed in a remedial English class as a result. The serving learning project provided these students with reading materials based on their skill level and interests. The research study focused on how teachers at different stages in their careers (pre-service, in-service, and teacher educator) collaborated to plan effective discussions-based instruction to help struggling readers improve their literary analysis skills.

Project Dissemination:

Zachary Cole Allen, Samantha Lynn Haas, Alison Heron Hruby (2015). The Potential for Using Small-Group, Peer-Led Discussions to Foster Literary Analysis Skills Among Struggling High School Readers. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Pending: A manuscript is in progress based on the study; the manuscript will be submitted to Reading Writing Quarterly. The authorship will be as follows: Alison Heron Hruby (lead author), Brandie Trent (second author), Z. Cole Allen (third author), Samantha Haas (fourth author).

Awards and/or Honors:

Certificate of Participation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Post-Graduation Plans – Seniors Only:

N/A

Haas, Samantha

Major:

English

Mentor:

Alison Heron Hruby

Research/Project Title:

The Potential for Using Small-Group, Peer-Led Discussions to Foster Literary Analysis Skills Among Struggling High School Readers

Project Abstract/Summary:

The purpose of this qualitative study was to capture how an experience English teacher plans class discussions for high school students who are significantly behind in reading. Large-scale studies of successful middle and high school language arts instruction have demonstrated that discussion is an effective method for fostering reading and writing skills among all levels of students, including struggling readers (Applebee, et. Al., 2003; Langer, 2001). The present study will provide researchers and classroom teachers with insight into how a skilled teacher plans discussions aimed at her students' literacy growth.

Project Dissemination:

The project is in the data analysis stage; there has been no dissemination yet.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Ison, Megan

Major:

English

Mentor:

Deanna Mascle

Research/Project Title:

A Study of Student Writing Performance in Eastern Kentucky

Project Abstract/Summary:

While writing continues to be an essential skill for success and while tremendous advances have been made in our understanding about the best practices for teaching writing, students continue to struggle as writers and schools struggle to support their student writers. This project is the first step in a multi-phase research project to study the impact of the Morehead Writing Project on the teachers and students of Eastern Kentucky. Both nationally and within Kentucky, research has proven that National Writing Project professional development has a powerful impact of the Morehead Writing Project on the student writers of our region. For this phase of the project, we mined existing databases, specifically the Kentucky School Report Card and United States Census Quick Facts, to learn more about student performance on K-Prep writing exams and the correlation with specific demographic information, including household income and community education levels. This study provided important information about teaching writing in our region.

Project Dissemination:

Writing Eastern Kentucky Conference presentation, Kentucky Council of Teachers of English Conference presentation, Celebration of Student Scholarship, poster presentation, April, 2015.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Megan will student teach during the Fall 2015 semester and hopes to teach full-time after she graduates in December.

Lootens, Charli

Major:

English

Mentor:

Sylvia Henneberg

Research/Project Title:

Intergenerational Conflict Meets Racism: The Parent-Child Relationship in Lucille Clifton's Work

Project Abstract/Summary:

African-American writer Lucille Clifton's children's books and poems dealing with parenting or family relationships exude an air of regret, neglect, distance, and hopelessness. The black children in these works are left yearning for acknowledgement, affection, and attachment. Even the more nurturing of Clifton's parent-child relationships are sub-standard at best. The children lack a fundamental understanding of how society operates and how this causes their parents to behave. The portrayal of these intergenerational shortcomings serves as Clifton's indictment of the society that has created a class of people still largely unable to advance their societal standing. The black children in Clifton's works receive as little guidance from their parents as their parents, in turn, receive from the mainstream society that seeks little more than to cast them out. Clifton's work exposes worrisome parallels between dysfunctional and unfulfilling relationships between black parents and their children on the one hand and, on the other, black and white US cultures of the 20th and 21st centuries.

Project Dissemination:

Lootens, Charlie and Henneberg, Sylvia (2015). Intergenerational Conflict Meets Racism: The Parent-Child Relationship in Lucille Clifton's Work, oral presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Pelgen, Rachel

Major:
English/Theater

Mentor:
Alison Hruby

Research/Project Title:
The Potential for Using Small-Group, Peer-Led Discussions to Foster Literary Analysis Skills among Struggling High School Readers

Project Abstract/Summary:
The purpose of this qualitative study was to capture how an experienced English teacher plans class discussions for high school students who are significantly behind in reading. Large-scale studies of successful middle and high school language arts instruction have demonstrated that discussion is an effective method for fostering reading and writing skills among all levels of students, including struggling readers (Applebee, et. Al., 2003; Langer, 2001). The present study will provide researchers and classroom teachers with insight into how a skilled teacher plans discussions aimed at her students' literacy growth.

Project Dissemination:
The project is in the data analysis stage and no dissemination has taken place yet.

Awards and/or Honors:
N/A

Post-Graduation Plans – Seniors Only:
N/A

DEPARTMENT OF HISTORY, PHILOSOPHY, RELIGION, AND LEGAL STUDIES

Conn, Chelise L.

Major:
History/Paralegal Studies

Mentor:
Alana Scott/Kris DuRocher

Research/Project Title:
Issues on Women's Reproductive Rights, 1980-1989

Project Abstract/Summary:
During the late 1970s and early 1980s, employers, such as General Motors, St. Joe's Minerals, Allied Chemicals, Olin, and B.F. Goodrich, adopted "fetal protection policies" that banned certain women from jobs that involved toxic chemicals. Frequently women had to be sterilized or risk being fired or demoted. They gave employers incentives not to hire women, thus women opposed them as a form of sex discrimination. Scholars have failed to give significant focus to such reproductive trends, such as teenage pregnancy and fetal protection policies, thus limiting the significance of these trends in the larger historical context. By examining 1980s culture, reproductive politics and employment policies in relation to women's rights, one could conclude that sterilization abuse was still a societal concern, the political debate over teenage pregnancy was a rhetorical surrogate for the larger issue of the "underclass" and fetal protection policies were a backlash to gender equality.

Project Dissemination:
Her poster was accepted at Posters-at-the-Capitol but she didn't get to go. It was presented at the Celebration of Student Scholarship. She is planning to submit a paper version of the project to the undergraduate research journal announced in the Celebration of Student Scholarship folder information.

Awards and/or Honors:
Her poster received a Merit Award at the Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:
Chelise is taking a job as a paralegal/legal assistant with future plans to attend law school.

Dean, Jonathan

Major:

History/Communications

Mentor:

Alana Scott

Research/Project Title:

Born from Fire: How Morehead State University Rose from Bloody Origins

Project Abstract/Summary:

For this project Jonathan worked in the MSU Archives organizing materials for the upcoming historical documentary on the history of Morehead State University based loosely on Dr. Don Flatt's A Light to the Mountains. Most of his work involved reviewing and cataloguing photographs and scanning them for digital use. Once a significant portion of the organization was finished Jonathan completed research from the archive's primary materials on the founding of MSU. Specifically he examined how regional conflict inspired missionaries to create a place for Christian education in the area and eventually how that small institution evolved into one of Kentucky's most notable sources of higher education.

Project Dissemination:

Jonathan presented a poster at the Celebration of Student Scholarship and plans to present the poster at the Fall 2015 Kentucky Honors Roundtable September 30-October 1 at Eastern Kentucky University.

Awards and/or Honors:

It's not an award, but Jonathan's work will be featured in the historical documentary on the history of Morehead State University currently in production.

Post-Graduation Plans – Seniors Only:

Jonathan is only a freshman and does not have any solid plans yet.

Hieneman, Madeline

Major:

History

Mentor:

Alana Scott

Research/Project Title:

The History behind Morehead State University's Buildings and the Architectural Styles Used.

Project Abstract/Summary:

This research will focus on the historical significance of Morehead State's buildings and how architectural styles have evolved at the university since the beginning of the school in 1887 to the present. With over fifty buildings on campus, each building's design reflects the popular architectural styles at the time it was constructed. This presentation will emphasize certain historic buildings, such as Fields Hall, Breckenridge Training School, Rader Hall, Camden-Carroll Library, the President's House, Button Auditorium, and Allie Young Hall. Buildings that were constructed in the mid to late 20th century, such as the Mignon complex, Alumni Tower, and the Adron Doran University Center, will also be a part of the presentation. This research will be used for a documentary on the history of Morehead State University. The research was conducted in MSU's Archives.

Project Dissemination:

Maddie presented a poster at the Celebration of Student Scholarship and plans to present the poster at one of the upcoming Kentucky Honors Roundtables.

Awards and/or Honors:

It's not an award, but Maddie's work will be featured in the historical documentary on the history of Morehead State University currently in production.

Post-Graduation Plans (Seniors Only):

N/A

Kubala, Alex

Major:

Legal Studies

Mentor:

Kelly Collinsworth

Research/Project Title:

You Have the Right to Remain Silent: Increasingly Harsh Trends in National School Disciplinary Practices

Project Abstract/Summary:

After surges in school violence and the implementation of the Gun Free Schools Act of 1994, schools have tightened campus security and explored new ways of ensuring a safer learning environment. Zero tolerance policies gained popularity in the 1990s and spread to school districts all over the United States as an effort to deter crime and remove disruptive and violent children from the school system. There was also a national increase in the number of school resource officers stationed at schools, which allowed them to become more involved in school discipline routines. These two trends in disciplinary policy have generated controversy and lack conclusive data to prove their effectiveness in reducing juvenile recidivism and on-campus crime. School resource officers and zero tolerance policies can also create unintended consequences for students. The purpose of our research is to demonstrate that these increasingly strict trends raise concerns for the protection of juveniles' constitutional and due process rights, particularly regarding school interrogations and the application of zero tolerance for minor offenses and disciplinary problems.

Project Dissemination:

Kubala, Alex and Professor Kelly Collinsworth, (2015) You Have the Right to Remain Silent: Increasingly Harsh Trends in National School Disciplinary Practices, Poster, Celebration of Student Scholarship, Morehead, KY, April.

Alex's research was also used to assist Prof. Collinsworth with an article written entitled "I Will Have Order": A Potterish Examination of Authoritarian School Disciplinary Trends and Reactions. This article will be published in an upcoming book entitled From Here to Hogwarts, which is an interdisciplinary Potter studies book.

Awards and/or Honors:

N/A

Post-Graduation Plans (Seniors Only):

N/A

Rucker, Jaron

Major:

History

Mentor:

Adrian Mandzy

Research/Project Title:

Looking Into the Crater: How History Has Seen and Told the Story of the Siege of Petersburg

Project Abstract/Summary:

Over the course of the Spring 2015 Mr. Rucker researched how the Siege of Petersburg was remembered through books, articles, pictures, and primary source documents. Comparing and contrasting the views of those writing will help to understand why there has been a mixed history at the site. He also was part of a battlefield dig team at Petersburg in Spring 2015, and helped draft parts of the Preliminary Report of the Petersburg Crater Battlefield Project for the United States National Park Services.

Project Dissemination:

Adrian Mandzy, Michelle Sivilich, Benjamin Fitzpatrick, et. al., Holding the Line: A Preliminary Report on the Survey of the Battle of the Crater, 20 July 1864. Publication. Currently under review by the Northeast Region Archeology Program, National Park Service.

Co-presenter, (2015) Filling the Gap: A Historical and Archaeological Study of the 1864 Battle of the Crater. Presentation, the Greater Morehead Community, Morehead State University, Morehead, KY, April.

(2015) Looking into the Crater. Presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans (Seniors Only):

Taking a year off and then pursuing graduate school.

DEPARTMENT OF INTERNATIONAL AND INTERDISCIPLINARY STUDIES

Francis, Sarah

Major:
Elementary Education
Mentor:
Philip Krummrich
Research/Project Title:
On the Road: Bill Bryson, William Least Heat Moon and the Epic Drive around America
Project Abstract/Summary:
In response to a call for essays to be included in a proposed anthology of studies of road literature in America, we will carry out an intensive study of two of the best-known works in the genre of America road literature, The Lost Continent and Blue Highways.
We carried out the study, and Francis delivered an oral presentation at the Celebration of Student Scholarship, April, 2015. Work is continuing, and we will submit an article for the proposed anthology, although it is not certain that the proposed anthology will be accepted for publication.
Project Dissemination:
Presented at the Celebration of Student Scholarship. To be submitted for proposed anthology, title and date of publication unknown at this time.
Awards and/or Honors:
N/A
Post-Graduate Plans – Seniors Only:
Francis has accepted a teaching position at Warfield Elementary in Martin County.

Kuchenbrod, Andrew

Major:
History
Mentor:
Joy Gritton
Research/Project Title:
Kids and Community History: Fostering Appalachian Pride in the Next Generation
Project Abstract/Summary:
It is common in small, struggling Appalachian communities, for lack of pride in the present day to be balanced by the fond memories of “the good ol’ days.” Whether in the form of storytelling, music, or simply conversation over a cup of coffee, this activity of recollection is often performed primarily by the older residents, who naturally have more to recall. Appalachian communities have, in general, a more vibrant history than their youth may realize; with only the present day to inform their opinions, many children do not share the elder’s recourse of pride in the past. This project investigated how the presentation and expression of local history to and by the youth may contribute to an increase in the emotional attachment of youth to their community, and pride in one’s hometown and oneself. An oral history project at the Haldeman Community Center's After-School program was conducted in the fall, and in the spring these activities of the community elders and youth were linked through research with positive benefits of local history education, including increased youth resiliency, intergenerational ties, and a stronger sense of place. Further efforts to foster community engagement and local pride through history education were envisioned at the close of the project.
Project Dissemination:
Oral presentations were given at the Appalachian Studies Association's annual conference, this year located in Johnson City, TN; at the UK Graduate Appalachian Research Community annual symposium in Lexington; as well as a poster presentation at the Celebration of Student Scholarship at MSU. Citations are provided below. This project and any future developments are a part of the programming of the Haldeman Community Center; information about the center is available online, at www.haldemancommunitycenter.org
Kuchenbrod, Andrew (2015). Kids and Community History: Fostering Appalachian Pride in the Next Generation, presentation, University of Kentucky Graduate Research Conference, UK, Lexington, KY, April.
Kuchenbrod, Andrew (2015). Kids and Community History: Fostering Appalachian Pride in the Next Generation, presentation, Appalachian Studies Association Conference, Johnson City, TN, March.
Kuchenbrod, Andrew (2015). Kids and Community History: Fostering Appalachian Pride in the Next Generation, poster, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Andrew is the 2015 recipient of the Outstanding History Student Award, given by the Morehead State University Department of History, Philosophy, Religion, and Legal Studies.

Andrew's project was accepted for presentation at the 2015 Posters at the Capitol, but the entire event was cancelled due to inclement weather.

Post-Graduation Plans – Seniors Only:

Andrew has applied to the University of Kentucky's college of Social Work - if accepted, he plans to pursue a Master's degree in Social Work part-time on the campus of Morehead State University, while also remaining active with the Haldeman Community Center.

Wile, Cailin

Major:

English Education/French

Mentor:

Philip Krummrich

Research/Project Title:

Translating Contemporary Postcolonial Literature

Project Abstract/Summary:

We will identify important new works in poetry and short fiction by contemporary postcolonial authors writing in French (Wile) Spanish and Portuguese (Krummrich). We will support each other’s work by reading drafts and discussing fine points, and submit finished translations for possible publication. We will also prepare a conference presentation on the challenges of translating contemporary postcolonial material.

This was the original plan. As the work progressed, we made some changes. Wile continued to translate postcolonial poetry by African authors from French into English; Krummrich had the opportunity to begin a translation of a novel by a contemporary Galician author. Each participant served as a reader of and commentator on the other's translations, which led to many fruitful discussions. We expect to continue the work in the fall. Wile has submit

ed several of her translations to a literary journal, with a good chance of getting one or more of them published. Krummrich has completed about 20% of his translation, and has set a goal of finishing it during his sabbatical leave in the spring semester of 2016.

Project Dissemination:

Wile delivered an oral presentation at the Celebration of Student Scholarship, April 22, 2015. As noted above, she has also submitted several pieces of translated work for possible publication. Krummrich plans to complete his translation by the end of the spring semester of 201, and to pursue publication.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

DEPARTMENT OF MUSIC, THEATRE, AND DANCE

Buede, Aaron

Major:

Music Performance

Mentor:

Nathan Dishman

Research/Project Title:

The Art of the Audition: A Musician’s Guide to the Audition Process

Project Abstract/Summary:

Mr. Buede's research has compiled an in depth guide for musicians taking auditions, covering many common audition types. These types include professional ochestral auditions, music festival auditions, recorded auditions, solo competition auditions, and undergraduate/graduate school auditions. Mr. Buede's research focuses on both the underlying factors common to all audition settings, such as efficient preparation and the psychology of the audition event itself, as well as those factors specific to each different setting. To achieve his end, Mr. Buede has drawn on personal audition experience, compiled the most useful aspects from existing resources, and conducted extensive interviews of both his peers and professors on their personal audition experiences. The field of music performance

in today's world is one which requires a high level of versatility, as such Mr. Buede believes that his research will be a useful tool for future musicians wishing to give themselves access to as many different performance opportunities as possible by becoming well-rounded auditioners. This research was supported by MSU Undergraduate Research Fellowship.

Project Dissemination:

Oral presentation at year-end Celebration of Student Scholarship.

Awards and/or Honors:

While not an award from MSU, Mr. Buede's research into audition success played a direct role in allowing him to win several auditions, including graduate school auditions at the Longy School of Music in Boston (where Mr. Buede will attend with scholarship), and the Royal College of Music in London, as well as the summer festival Le Domaine Forget in Quebec.

Post-Graduation Plans – Seniors Only:

Mr. Buede has received a scholarship to pursue graduate studies at the Longy School of Music under the current bass trombonist of the Boston Symphony, James Markey.

Calhoun, Jonathan

Major:

Music Education

Mentor:

Stacy Baker/Deborah Eastwood

Research/Project Title:

The Evolution of the brass Band Movement in North America

Project Abstract/Summary:

Brass bands became a popular musical ensemble in Europe during the late 19th century through the creation of Salvation Army Bands and industry-sponsored community bands. These musical ensemble traditions migrated from Europe to the United States in the form of military and community bands. Today, the brass band movement in North America has achieved popularity through the efforts of the North American Brass Band Association, the U.S. Open Brass Band Championships, and events such as the Great American Brass Band Festival and the Hannaford Festival of Brass. This study explores the evolution of the brass band movement in North America and the tremendous impact it has had on the development of a growing repertoire of extraordinary test pieces by leading composers as well as providing a performance medium for non-orchestral extant saxhorns - ultimately securing their survival.

Project Dissemination:

This research will be presented at the Morehead State University Celebration of Student Scholarship.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Master of Music in Musicology.

Connell, Nathan

Major:

Music Education

Mentor:

Brian Mason

Research/Project Title:

The Relationship between the Industrial Revolution and Percussion Instrument Advancements

Project Abstract/Summary:

The art form of percussion performance has undergone great transformation over several centuries. During this transformation the 1800’s were an especially progressive time for percussion instruments. This century was also one of the world’s most progressive as a whole. The Industrial Revolution brought the world into a new era of invention and productivity. This project aims to connect the innovations of the industrial revolution to the innovations in percussion instrument manufacturing and highlight the effects of that development in the music following that progress. Additionally, the project draws from major percussion writings such as James Blades’, A History of percussion on John Beck’s, Encyclopedia of Percussion, as well as various score studies and time in the Percussive Art Society’s Rhythm! Discovery Center. A lack of concrete documentation leaves the majority of the

connections between the industrial revolution and percussion advancement to be inferred. This research was supported by a Morehead State University Undergraduate Research Fellowship.

Project Dissemination:

Connell, Nathan J. and Mason, Brian S. (2015). The Relationship Between the Industrial Revolution and Percussion Instrument Advancements, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Jackson, Kathryn

Major:

Music Education

Mentor:

L. Curtis Hammond

Research/Project Title:

Methods and Materials for French Horn Technique and Instruction

Project Abstract/Summary:

The purpose of this research project is to provide future horn students and music educators with an extensive resource dealing with various aspects of French horn technique, alongside charts of the horn itself, care and maintenance procedures, a brief history of the horn, suggested solo, etude, and method books, and a discography of common solos and ensembles. This project has ultimately evolved into a pedagogical resource alongside a reference manual. It is our intention to use etude literature and orchestra repertoire in order to work on technical problems in a musical context. Portions of this book may be beyond the performance level of younger students; in this case, those students can supplement the advanced excerpts with similar excerpts from solo and ensemble literature on which they are currently working. More-experienced students, in an effort to be more efficient, can replace excerpts with similar passages from solo and ensemble literature on which they are currently working. Those who utilize this method book will find it a useful resource for themselves or their French horn students. This research was supported by an Undergraduate Research Fellowship.

Project Dissemination:

Jackson, Kathryn. and Hammond, Dr. L. Curtis. (2015). Methods and Materials for French Horn Technique and Instruction, oral presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Jackson, Kathryn. and Hammond, Dr. L. Curtis. (2015). Methods and Materials for French Horn Technique and Instruction (synthesized), oral presentation, Morehead State University High School Honor Band Clinic, French horn master class, Morehead, KY, February.

Awards and/or Honors:

I received the "Certificate for Exceptional Merit" for oral presentations in the Caudill College of Arts, Humanities, and Social Sciences after my presentation at the Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

N/A

Ritchie, Anthony

Major:

Music Education

Mentor:

Nathan Dishman

Research/Project Title:

The Development of Stravinsky’s Compositional Techniques and Common Interpretations of His Style

Project Abstract/Summary:

When looking at Stravinsky’s works on a chronological scale, you begin to see defining characteristics of his music that divide his career as a composer into three distinct periods. I have attempted to trace this development through score analysis and surveys of recordings. When analyzing scores and comparing them to their interpretations by major ensembles, you discover that despite what style Stravinsky was composing in or which of his three periods that work comes from, there are common threads in the interpretation of his writing. This goes so far as discovering shared musical ideas among his works. Understanding the historical background of a particular work is key to a

successful performance that remains true to Stravinsky's intentions. Using this information, I organized a small ensemble to rehearse and perform Stravinsky's Octet, a defining piece from his second 'Neoclassical' period. The performance will take place at my Senior Recital in the Fall. Support for this project came from the George M. Luckey Jr. Academic Honors Program.

Project Dissemination:

Oral Presentation, Spring 2015, Celebration of Student Scholarship.
Performance of Stravinsky's Octet, Fall 2015, Senior Recital.

Awards and/or Honors:

Certificate of Merit, Spring 2015 Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

Attend graduate school for music performance.

Tyree, John

Major:

Music Education

Mentor:

Brian Mason

Research/Project Title:

A History of Electroacoustic Percussion Solo Repertoire

Project Abstract/Summary:

In the 1940s, electronics began finding their way into the music world, specifically in 1939, with John Cage's first work to use tape in live performance; Imaginary Landscapes No. 1. From this point, electroacoustic accompaniment made the most appearances in percussion repertoire. This research will examine the use of electronics in solo percussion repertoire from the 1940s to the present. These media will include tape, complex electronics, and computer processing. A few selected works will be discussed in detail. Pieces will include: 27'10.554" For a Percussionist (1956), John Cage; Child of Three (1974), John Cage; Can't See The Forest…Music (1972), Daniel Lentz; Metamorforsi I per Marimbafono e Nastro (1978), Ivan Patachich; Fabian Theory (1987), Nigel Westlake; Six Japanese Gardens (1993), Kaija Saariaho; Watershed IV (1995), Roger Reynolds; Daydreams for Marimba (1991), Philippe Boesman; and Two Hands (Not Clapping) (2009), Wayne Siegel. At the conclusion of the study, a chronological index of electroacoustic percussion solos will be included. This research aims to provide a history of the usage of electronics in solo percussion literature to gain a greater understanding of the evolution and future of the field. This research was supported by a Morehead State University Undergraduate Research Fellowship.

Project Dissemination:

Tyree, John M. and Mason, Brian S. (2015). A History of Electroacoustic Percussion Solo Repertoire, poster presentation. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Clay, Caroline

Major:

Theatre

Mentor:

Denise Watkins

Research/Project Title:

Madrigal Feaste

Project Abstract/Summary:

Ms. Clay served as the director and stage manager of The Madrigal Feaste, which sold out both evenings of the performance. She began by researching performance styles of the Renaissance era, but this year she had the additional task of researching Appalachian styles as that became intertwined in the theme and script.

Project Dissemination:

The most significant dissemination was the Madrigal Feaste in December of 2014. Ms. Clay also presented her research at the Celebration of Student Scholarship, at Morehead State University in April, 2015.

Awards and/or Honors:

Ms. Clay was nominated to compete for the Irene Ryan Acting Award through the Kennedy Center American Collegiate Theatre Festival.

Post-Graduation Plans – Seniors Only:

Ms. Clay was invited to several significant auditions at regional theatres. She accepted a full-time acting position at Florida Repertory Theatre in Fort Meyers and will earn points that will count towards admission to the Actor's Equity Association.

DEPARTMENT OF SOCIOLOGY, SOCIAL WORK, AND CRIMINOLOGY

Back, Julia

Major:

Social Work

Mentor:

Lisa Shannon

Research/Project Title:

Understanding Regional Disparities in Basic Human Needs: Findings from a Gateway Community Action Council Needs Assessment

Project Abstract/Summary:

This collaborative project with Gateway Community Action Council sought to identify regional disparities, community services and targeted needs while advocating in developing a strategic funding plan. This strategic plan affects the populations of: Bath, Menifee, Montgomery, Morgan, and Rowan Counties which constitutes the Gateway service area. Data for this poster was obtained from 530 client surveys that lived in one of the designated Gateway Area counties and filled out the needs assessment survey. Five hundred and eight respondents (N = 508) who were over the age of 18 (or did not have missing data on age) were included in the analysis. The factors of age, income, gender, race and marital status were examined in the Client Needs Assessment. When interpreting data from the demographic variable age the results show the mean age of participants was 41 years old. The most commonly reported yearly income range was $0-$9,999 (38.5%). The majority were female (80.2%) and Caucasian (96.9%). Over one-fourth (43.6%) of the population were married and a little over one-third resided in Morgan County (40.0%). When broken down the main service needs identified was: employment (31.4%). This research was supported by a MSU Undergraduate Research Fellowship.

Project Dissemination:

Julie Back and Lisa Shannon (2015). Understanding Regional Disparities in Basic Human Needs: Findings from a Gateway Community Action Council Needs Assessment. Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Accepted a job placement for a Direct Support Professional Position at Key Asset Kentucky.

Blevins, Tracy

Major:

Sociology

Mentor:

Bernadette Barton

Research/Project Title:

The Fourth Wave: Exploring the Landscape of the Contemporary Feminist Movement

Project Abstract/Summary:

For many young feminist, there is a distinct generational divide between the previous "third-wave" and the current feminist movement. This presentation explores the connections, as well as the discernable differences, between the fourth-wave and preceding feminist movements in order to provide an understanding of the current feminist landscape in a way that may be useful to future feminist education and activism. In particular, interview subjects identified technology, including social media and blogging, along with raunch culture, our hyper-sexualized media culture, as pivotal elements defining fourth-wave feminism.

Project Dissemination:

This research was presented at the 2015 Celebration of Student Scholarship.

Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

Flint, Justin

Major:
Criminology
Mentor:
Elizabeth Perkins
Research/Project Title:
Exploring Homeless Males' Vulnerability to the Sex Trafficking Industry in Kentucky
Project Abstract/Summary:
Interviews will be conducted with homeless males in Louisville, Kentucky, to attempt to gain a greater understanding of the prevalence of sex trafficking among this population. This project is significant because there is a scarcity of information available. Our focus is on the homeless male population, as homeless individuals, especially young people, are at an increased risk for being victims of this crime. This project proposes to explore sex trafficking of homeless males in the state of Kentucky with the hopes of gaining a clearer understanding of the scope of the problem. We plan to accomplish this goal, via qualitative interviews with homeless males. These interviews will help us to examine the pathways in and out of sex trafficking for homeless men, while allowing us to explore other topics of concern such as trauma bonds, and the labeling of the male victims in the system. This project is supported by MSU Undergraduate Research Fellowship.
Project Dissemination:
Fling, J.M. and Perkins, E. (2015). Exploring Homeless Males' Vulnerability to the Sex Trafficking Industry in Kentucky, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

Jacques, Demi

Major:
Criminology
Mentor:
Bernadette Barton/Elizabeth Perkins
Research/Project Title:
Student Satisfaction with Sex Education
Project Abstract/Summary:
Sex education in public schools is a much debated topic, however the students who are affected by their education are rarely involved in the debate. Interviews will attempt to pinpoint when sex education occurred (middle school, high school, etc.), what information it consisted of and how satisfied students are, in hindsight, with the education they received. Interviews with Morehead State University students will seek to gauge their satisfaction with their sex education as well as explore other ways in which they learned about sex, sexuality, gender and related topics. This study was made possible through an Undergraduate Research Fellowship with Dr. Bernadette Barton and Dr. Elizabeth Perkins at Morehead State University.
Results: Hypothesis correct, the less information students received (abstinence-only, for example), the less satisfied students were with their sex education. Students recommended comprehensive sex education as a continuous class and coverage of topics such as consent and LGBT + issues.
Project Dissemination:
Oral presentation, 2015 Celebration of Student Scholarship.
Awards and/or Honors:
Merit Award, Celebration of Student Scholarship.
Post-Graduation Plans – Seniors Only:
Attending Lewis and Clark Law School in Portland, Oregon.

Mabry, Hannah

Major:

Sociology

Mentor:

Bernadette Barton

Research/Project Title:

Changes in Exotic Dancing: Raunch Culture, the Economy, and Technology

Project Abstract/Summary:

The economic recession starting in 2008 negatively affected many American industries, including strip bars. Additionally, the increasing availability of free internet porn, hook-up culture, and the widespread use of cell phones in daily life have changed the way women experience working as exotic dancers. Through audio-taped interviews with 20 dancers and other club employees, this study explores participants' ideas about the current work lives of dancers. Preliminary data suggests deteriorating conditions for dancers in which customers routinely expect sexual services in excess of public and private dances.

Project Dissemination:

Mabry, Hannah and Demi Jacques (2015). Implications and Student Perceptions of Pornography, poster presentation, Posters-at-the-Capitol, Frankfort, KY, February.

Mabry, Hannah and Demi Jacques (2015). Implications and Student Perceptions of Pornography, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

McIntosh, Sharon M.

Major:

Criminology

Mentor:

Rebecca S. Katz

Research/Project Title:

Explaining the Social Construction of Gender in White Supremacist Literature across Time

Project Abstract/Summary:

The social media prevalence of white supremacist rhetoric requires investigation. While the presence of white supremacist groups on the World Wide Web has been investigated, little research involved examining the presence of white supremacist rhetoric and attempts to enlist recruits. This research will examine a variety of social media sights including Pinterest and Tumblr and compare and contrast to an early 20th century KKK handbook.

Project Dissemination:

This paper was presented at the November 2014 Annual American Society of Criminology meetings by the student and the professor.

Awards and/or Honors:

Project was not completed.

Post-Graduation Plans – Seniors Only:

N/A

COLLEGE OF EDUCATION

DEPARTMENT OF EARLY CHILDHOOD, ELEMENTARY, AND SPECIAL EDUCATION

DeMoss, Anna Bethany

Major:
Education

Mentor:
April D. Miller

Research/Project Title:
Getting Attention: There is a Right Way and a Wrong Way

Project Abstract/Summary:
We examined the effects of several interventions on the classroom behavior of the first grade, male student. The purpose of this study was to determine the function of this child's behavior and to reduce the inappropriate behaviors to create a better classroom environment for this student and all other peers in the first grade classroom. To determine the function of inappropriate behaviors, we manipulated the situation to determine if the student responded most frequently to attention condition, escape condition, tangible condition, or alone condition. After we determined the function of the inappropriate behavior, positive teacher attention was given to the student contingent upon appropriate behavior. Outcome was that this 2 x 10 strategy did not positively affect behavior. Subsequently, additional interventions were tried. The results were analyzed and reported to the teacher, the parents, and in this case study.

Project Dissemination:
Accepted Poster Presentation: Posters-at-the-Capitol, Frankfort, KY, February, 2015.
Presented Poster: Celebration of Student Scholarship, Morehead State University, April, 2015.
Submitted for Poster Presentation: KY Association of Teacher Educators, Bowling Green, KY, September, 2015.

Awards and/or Honors:
Excellence Award (Poster Judging by faculty members) at MSU Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:
Bethany will be student teaching in the Fall 2015 semester and graduating in December. She plans to teach elementary or special education students in our local area.

Montgomery, Lisa

Major:
P-5 Education

Mentor:
Mee-Ryoung Shon

Research/Project Title:
Multicultural Education in a Monoculture Environment

Project Abstract/Summary:
Through the comparison of two versions of Korean Cinderella stories and the comparison of cultural representations in three Cinderella stories from African, Egyptian, and Korean cultures 4th and 5th grade gifted students identified elements of the cultures. Culminating the lesson, students wrote their own Cinderella narrative, based on their own Eastern Kentucky culture representation.

Project Dissemination:
Shon, M. and Montgomery, L. (2014) Multicultural Education in a Monoculture Environment, presentation, Kentucky Engagement Conference Presentation, Morehead, KY.
Montgomery, Lisa, Post-bachelor Student and Shon, Mee, Ph.D. (2015). Multicultural Education in a Monoculture Environment, presentation, Kentucky Association for Gifted Education Annual Meeting, Lexington, KY, February.

Awards and/or Honors:
N/A

Post –Graduation Plans – Seniors Only:
To teach P-5 in an Eastern Kentucky school.

Thompson, Cierra M.

Major:
Education

Mentor:
Mee-Ryoung Shon

Research/Project Title:
"Legs and Literacy," Development of Activities to Promote Literacy Developments of Preschool Children through a Series of Physical Activities

Project Abstract/Summary:
Howard Garner's theory of Multiple Intelligence denoted "Kinesthetic Intelligence" as one of the ways for human beings develop understanding around the world. "Learning through play" is very important and there is research that had shown how physical activities affect and enhance literacy development in young children. Series of comprehensive activities that incorporate literacy skills with movements were embedded in the preschool classroom, formed with three, four and five year olds in the Louisville area. Teacher-led whole group movement activities were integrated into the regular preschool center activities such as puzzle, play dough, stencil painting, and magnet letters, etc.

Project Dissemination:
Cierra Thompson and Mee-Ryoung Shon (2015). Legs and Literacy, poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
N/A

Post –Graduation Plans – Seniors Only:
N/A

DEPARTMENT OF FOUNDATIONAL AND GRADUATE STUDIES IN EDUCATION

Kallas, Maria

Major:
Elementary Education (P-5), Special Education (LBD, K-12)

Faculty Mentor:
John Curry

Research/Project Title:
Trends in Stakeholders' Perception of Mason County's 1:1 iPad Implementation

Project Abstract/Summary:
In 2012, Mason County High School, located in Maysville, KY, launched a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. According to Forbes, at its debut at the start of the 2012-2013 school year, this 1:1 iPad implementation was ranked eighty-ninth largest in the world. This presentation will examine the qualitative data collected this year. The data included examines the 1:1 implementation through a Diffusions of Innovation theoretical framework. The methodology is a stakeholder-based evaluation that will focus on administration, students, and early responders. This research is sponsored by Morehead State University's College of Education through the Undergraduate Research Fellowship Program.

Project Dissemination:
Student, Maria K. and Professor, Dr. John C. (2015). Trends in Stakeholders' perceptions of Mason County's 1:1 iPad Implementation. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
People's Choice Award, Annual Celebration of Student Scholarship, Poster Presentation, April, 2014.

Post-Graduation Plans – Seniors Only:
N/A

DEPARTMENT OF MIDDLE GRADES AND SECONDARY EDUCATION

Perrin, Andrew

Major:
Secondary Social Science Education

Faculty Mentor:
Lesia Lennex

Research/Project Title:
3D in American History and Social Studies Courses Grades 8-12

Project Abstract/Summary:
Technology has become an ever-present part of our world. The use of technology has many applications, including in the field of social studies education. This study focused on how technology is being used in Kentucky social studies classrooms and its perceived classroom effects. Using SurveyMonkey, social studies teachers grades 5-12 in 65 of Kentucky's school districts were asked what technologies they used in their classrooms. The survey had a 17% return from teachers. Survey results indicated that teachers most often used videos, apps, and websites. The main reasons for using technology are testing, student research, content review, and interactivity. Teacher and student enjoyment for using technology and improved student performance are the main triumphs. The main challenges to technology use are lack of technology in student's home, weak school technology infrastructure and/or lack of equipment, and students being off-task when engaging with technology.

Project Dissemination:
Perrin, A. (2015). Technology in Kentucky Social Studies Classrooms. (2015) Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Also prepared draft journal article for possible submission to professional publication(s) and proposal materials toward presentation at Society for Information Technology and Teacher Education Conference 2016.

Awards and/or Honors:
First Place Award College of Education (2015), poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Post-Graduation Plans – Seniors Only:
N/A

Beaton, Courtney

Major:
Veterinary Science

Faculty Mentor:
Lesia Lennex/Kim Nettleton

Research/Project Title:
Understanding of the PPN: Three Years of Data Analysis

Project Abstract/Summary:
The Professional Partnership Network (PPN), a three-semester experience pairing experienced classroom teachers with P-5/Special Education teacher education candidates. Candidates progressively increase their responsibilities in the classroom while enrolled full-time in coursework. This study consisted of analyzing four years' data with five complete cohort groups (N=99) on (1) differentiated types of independent teaching within each block of the cohort, (2) differentiated methods of co-teaching within each block of the cohort, and (3) reflective feedback regarding experiences in the third block of cohort. Respondents mainly reported teaching to small groups (N=11) in first semester of PPN compared to teaching in whole group, tutoring (N=14) and small group, transitioning to other subjects (N=17). Most interesting was the increase in co-teaching. From first block to third block nearly tripled with PPN candidates assisting with teaching. Reflections from third block mentor teachers indicated their enthusiasm with the PPN in preparing classroom teachers. PPN candidates echoed this enthusiasm, and indicated that they felt more prepared for effective classroom management and preparing lessons. These three semesters are completely changing the preparedness of the soon-to-be teachers, getting them more ready to handle their own classroom.

Project Dissemination:

Beaton, C., (2015). Preparing Teachers through School Partnership, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Paper for possible inclusion to an article for National Association of Professional Development Schools produced.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

COLLEGE OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF AGRICULTURAL SCIENCES

Chaddock, Kaitlin N.

Major:
Veterinary Science

Mentor:
Duane Chappell

Research/Project Title:
The Effect of Firocoxib on the Proinflammatory Cytokine Expression in Horses Pre and Post Exercise

Project Abstract/Summary:
Firocoxib is a non-steroidal anti-inflammatory drug which inhibits cyclooxygenase-2 (COX-2) and is used for the alleviation of pain and inflammation in horses. Aged horses, from the Morehead State University riding program, (n=9) were placed into two groups [treatment = 57 mg daily of oral firocoxib, n= 4; control= non-medicated, n=5]. Blood samples (~4 ml) were collected via venipuncture into PAXgene tubes pre- and three hours post exercise. Polymerase chain reaction (PCR) with equine-specific primers was used to assess proinflammatory cytokine gene expression. A previously described inflammatory index was calculated and used for analysis. Statistical significance was set at $p<0.05$ and analysis was done using an ANOVA. The results are displayed as the mean ± SEM. There were no significant differences ($p=0.38$) pre-exercise between horses treated with firocoxib (0.78±0.74) and post-exercise control horses (-0.08± 0.56). There were no significant differences ($p=0.68$) post-exercise between treated (0.55 ± 0.92) and control horses (0.10 ±0.55). The pre and post-exercise inflammatory indexes were not significantly different between control horses and those horses treated with firocoxib. Research for this study was funded by the Undergraduate Research Fellowship.

Project Dissemination:
Chaddock, N. Kaitlin, Chappell, Duane E., and Malone, Sara R. (2015). The Effect of Firocoxib on the Proinflammatory Cytokine Expression in Horses Pre and Post Exercise. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
(2015). Presented at the Celebration of Student Scholarship, Morehead State University, April.

Post-Graduation Plans – Seniors Only:
Future career plans include veterinary school or animal health pharmaceutical sales.

Darby, Meagan

Major:
Veterinary Science

Mentor:
Duane E. Chappell

Research/Project Title:
Identifying Baseline Inflammatory Cytokine Values to Evaluate Fitness Levels in Middle and Older Horses

Project Abstract/ Summary:
Tumor necrosis factor-alpha (TNF-α) is a pro-inflammatory cytokine. It has been shown that when horses age they have a weaker immune system and will have a lower inflammatory response to trauma. Twenty adult horses (n=10 mares, n=18 geldings, n=2 stallions) were used to test the hypothesis that mature horses will have higher TNF-α values than older horses. Blood samples were collected before (pre) and three hours after exercise (post). Approximately four mL of blood was collected from the jugular and put into a PAXtube and analyzed for TNF-α values. TNF-α values were assessed with real-time polymerase chain reaction (PCR) using equine-specific primers. Statistical significance was set at $p<0.05$ and analysis was done using an ANOVA. Horses were split into age groups of mature, under 15 years of age (n=15) and aged, 15 years of age and older (n=15). The difference between pre-exercise values of mature (0.048 ± 0.06 Standard Error of the Mean) and aged horses (0.22 ± 0.06 SEM) was slight, but not significant. There was no significant difference between mature (-0.318 ±0.08 SEM) and aged horses (-0.169 ± 0.09 SEM) post-exercise. Older hoses had slightly higher TNF-α levels before exercise possibly due to chronic inflammation of the older horse. There was a trend for older horses to have a higher TNF-α before exercise. This could be because of chronic inflammation which is more likely in older horses with

degenerative diseases like arthritis. Future studies could have more significant differences if the subject population had a larger age gap and used young horses aged 5 and below.

Project Dissemination:

(2015), Morehead State University Celebration of Student Scholarship, April.
(2015) Equine Science Society Meeting, May.

Awards and/or Honors:

Award of Merit at the Celebration of Student Scholarship, Morehead State University, Morehead, KY.

Post-Graduation Plans – Seniors Only:

N/A

Perkins, Amanda M.N.

Major:

Veterinary Science

Mentor:

Duane E. Chappell

Research/Project Title:

The Relationship between Exercise Intensity and Proinflammatory Cytokine Expression in Middle-aged Horses

Project Abstract/Summary:

Exercise-induced increases in proinflammatory cytokine mRNA, including tumor necrosis factor alpha (TNFα) and interleukin-6 (IL-6) are comparable to that of an acute phase immune response. Few studies of inflammatory response in aged horses have been conducted. For this study, proinflammatory cytokine response levels were measured to compare high (n=5), low (n=5) intensity exercise, and a sedentary control group (n=3) of aged horses from Morehead State University's riding program (n=30). Pre and three hour post exercise blood samples were obtained via venipuncture. Blood samples (~4mL) placed in PAXgene tubes were vigorously shaken to lyse cells and liberate mRNA for PCR, using equine specific primers. TNFα, IL6, and previously selected inflammatory index were used to test the hypothesis that there will be an intensity-dependent effect of exercise on the selected proinflammatory cytokine gene expression in middle age horses. Statistical significance, set at $p<0.05$, was derived from an analysis using ANOVA.

Project Dissemination:

Presented at Morehead State University's 2015 Celebration of Student Scholarship, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

DEPARTMENT OF APPLIED ENGINEERING AND TECHNOLOGY

Easterling, Steve R.

Major:

Engineering Management

Faculty Mentor:

Sanjeev Adhikari

Research/Project Title:

Obtaining LEED Certification for MSU Building
Lease-Leaseback Delivery Method
Surety Bonds and How to Obtain Them

Project Abstract/Summary:

Morehead State University has need for LEED Certification to better improve its sustainability in ways such as reducing its environmental impact and saving energy, water, and money. Most of the changes would involve space and resource efficient lighting and water fixtures which are the main usage/wastage points for energy and water. These changes would make MSU further environmentally and financially stable as well as establish a positive example for other universities.

Project Dissemination:

Presented at the 2015 Celebration of Student Scholarship Program and awarded Special Merit Award for Oral Presentation.

Awards and/or Honors:

2015 Celebration of Student Scholarship Program and awarded Special Merit Award for Oral Presentation.
Proposal accepted to ATMAE Conference November 2015, Pittsburg, PA.

1. Submission Title: Cost and Life Cycle Analysis using LEED Certification for MSU Building.
2. Submission Title: Challenges of Obtaining Surety Bond for Construction Contracts.
3. Submission Title: Impact of Lease Lease-Back (LLB) Method in Construction Today.

Post-Graduation Plans – Seniors Only:

N/A

Garcia, Cody

Major:

Engineering Management

Faculty Mentor:

Nilesh Joshi

Research/Project Title:

Ergonomics Risk Analysis using Human Modeling and Simulation

Project Abstract/Summary:

Industrial workers spend a significant amount of time on their assigned workstations performing tasks that are repetitive in nature. These tasks are not only physically exhausting but also impose biomechanical stresses on workers. In this research project, digital human modeling is used to simulate industrial workers and their work environments. Using the simulation software, the virtual workers are designated to perform similar tasks as in real life situations. The purpose of the study is to explore ergonomic risk factors that can lead to various musculoskeletal diseases and complications. Using various ergonomics risk analysis tools in a simulated environment, we collected data on multiple health problems caused by the tasks performed and gained information that allowed us to adjust the workers' positions and/or the positions of the workstations to improve work environment and productivity. A minimax model is used to identify and minimize ergonomic risk factors. Additionally, sensitivity analysis is used to compare the strains endured by 5^{th}, 50^{th}, and 95^{th} percentile male and female workers.

Project Dissemination:

Garcia, C. and Joshi, N. (2015). Role of Human Modeling and Simulation in Ergonomics Risk Analysis, Oral presentation at the 10^{th} Anniversary Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Garcia, C. and Joshi, N. (2014). Ergonomics Risk Analysis using Human Modeling and Simulation. Poster presentation at the Kentucky Academy of Science 100^{th} Annual Meeting, Lexington, KY, November.

Garcia, C., and Joshi, N. (2015). Human Simulation and Ergonomics Analysis. Poster presentation at Posters-at-the-Capitol, Frankfort, KY, February.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

DEPARTMENT OF BIOLOGY AND CHEMISTRY

Alcorn, John N.

Major:

Biomedical Sciences/Pre-Med

Faculty Mentor:

Michael E. Fultz

Research/Project Title:

Smooth Muscle Specific Myosin Remodeling in A7r5 Smooth Muscle Cells

Project Abstract/Summary:

Previous studies have indicated that smooth muscle myosin may preferentially associate with alpha-actin in aortic smooth muscle. During contraction, the myosin cytoskeleton undergoes dramatic remodeling. However, the molecular mechanisms of this remodeling is poorly understood. This project will focus on the initial attempt to determine the mechanism of myosin remodeling during smooth muscle contraction.

Project Dissemination:

Nick has finished his first semester as an Honor Student Undergraduate Fellow. He has learned many techniques and is presently conducting experiments and gathering data. Nick plans to present his data in November 2015 at the Kentucky Academy of Science.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Barnette, Arlo

Major:

Biology/English

Faculty Mentor:

Allen Risk

Research/Project Title:

Structure and Composition of Epiphyte Communities on Eastern Hemlock in Spaws Creek Gorge, KY

Project Abstract/Summary:

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

Project Dissemination:

Structure and Composition of Epiphyte Communities on Eastern Hemlock in Spaws Creek Gorge, KY (2015). Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Certificate of Exceptional Merit, 2015 Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

N/A

Brough, Hannah

Major:

Biology/Environmental Science

Faculty Mentor:

Sean O'Keefe

Research/Project Title:

Applying SHE Analysis to a Beetle Diversity Study

Project Abstract/Summary:

Biodiversity is a crucial component for conservation in any given area. Beetles comprise approximately 25,000 species in North America, and therefore, are a perfect focus measuring biodiversity. For this study, biodiversity measurements were derived from the SHE analysis, which stands for species richness, diversity measure H, and evenness. This is a distribution-free methodology that presents the information in an all-inclusive manner by using modified Shannon and Simpson variables, H1 and H2. Furthermore, unlike other indices, the SHE analysis can effectively use the number and abundance of species to analyze patterns and diversity values for future biodiversity studies. These methods were applied to three different sampling sites taken in 2011 from the Daniel Boone National Forest. Each site has a different ecological history; one has been frequently burned, one has been less frequently burned, and one has not been burned, which serves as the control of the study. Capture methods include yellow pan traps. This study was funded in part by the Department of Biology and Chemistry. We also thank the USFS for permission to conduct this study in the Daniel Boone National Forest.

Project Dissemination:
Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

Brown, Rachel

Major:
Biology/Environmental Science
Faculty Mentor:
Sean O'Keefe
Research/Project Title:
Biodiversity of Lepidoptera in Rowan County, Kentucky, Part Two: Lycaenidae
Project Abstract/Summary:
According to Charles Covell's 1999 The Butterflies and Moths (Lepidoptera) of Kentucky: An Annotated Checklist and its 3 supplements, there are 2493 species of Lepidoptera (butterflies, moths, and skippers) known from Kentucky, with 563 of these occurring in Rowan County (RC). Our project updates Covell's records from RC via new data from The Society of Kentucky Lepidopterists and the current Lepidoptera collections of Morehead State University (MSU), Jonathan Smith, and the Pine Hills Survey. In part one of this project we identified five new county records (NCRs). This poster shows the second part of our biodiversity survey and includes information on members of the family Lycaenidae found in RC. It shows their common and scientific names and Hodge number. Information about our Lycaenidaes' host plants, seasonality, sexual dimorphism, and regional biodiversity is also provided. Covell recorded seven Lycaenids in RC and we have discovered eleven NCRs.
Project Dissemination:
Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

Bryant, Jessica

Major:
Biomedical Science
Faculty Mentor:
Geoffrey Gearner
Research/Project Title:
Evaluating Colilert-Blue for Specificity and Sensitivity in Detecting and Enumerating Fecal Coliform Bacteria in Treated Waste Water Samples
Project Abstract/Summary:
Jessica started into Dr. Gearner's laboratory in the fall of 2014 as an Honor's program URF. She received training in MSU's Water Testing Laboratory as a Certified Analyst, and provided assistance to students of BIOL 317 (Principles of Microbiology) in conducting bacteriological analysis of water samples. She then began work on a project requested by the Kentucky Division of Water to evaluate a culture medium designed to identify and enumerate feces-associated bacteria in treated waste-water samples. This medium was compared to two other commercially available media designed for the same purpose. This initial data collection was completed in early May 2015, and the task of evaluating the data and preparing a report will continue through the summer.
Project Dissemination:
N/A
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
Jessica is expected to complete her degree requirements in May 2016, and will apply to professional school.

Carty, Joshua S.

Major:

Biomedical Science/Premed

Faculty Mentor:

Michael E. Fultz

Research/Project Title:

The Effect of the Rho-Kinase Inhibitor Y-27632 on Alpha-actin and Beta-actin Cytoskeletal Remodeling in Resting and Contracting A7r5 Aortic Smooth Muscle Cells.

Project Abstract/Summary:

Evidence in A7r5 smooth muscle cells suggests that different remodeling of the alpha-actin and beta-actin cytoskeletal domains may explain the unique properties of smooth muscle. Data suggests that the redistribution of alpha-actin to podosomes is sensitive to phorbol 12,13-dibutyrate (PDB8)-induced contraction while beta-actin does not remodel to the podosomes but instead remodel within stress cables that may function to hold the cell in a shortened configuration. However, the mechanism(s) regulating this differential remodeling is poorly understood. The effect of Rho kinase inhibition upon the alpha- and beta-actin cytoskeleton by Y-27632 was examined before and after PDBu stimulation in A7r5 smooth muscle cells. Data suggests that Rho kinase inhibition, previously shown to antagonize the development and maintenance of contraction in rat aortic smooth muscle tissue, blocks alpha-actin remodeling to the podosomes and dissolution of remaining alpha-actin stress cables. Beta-actin remodeling appears to be minimally affected. In addition, the inhibition of Rho-kinase appears to selectively affect alpha-actin structure in resting cells with dissolution of alpha-actin stress cables while beta-actin stress cables retain their original structure. These results suggest that Rho-kinase may regulate alpha-actin remodeling of the alpha-actin and beta-actin cytoskeleton within contracting smooth muscle.

Project Dissemination:

Josh has finished his first full semester as an Undergraduate Research Fellow. He has learned many techniques and is presently conducting experiments and gathering data. Josh plans to present his data in November 2015 at the Kentucky Academy of Science.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Davis, Harley

Major:

Biomedical Science

Faculty Mentor:

Kurt M. Gibbs

Research/Project Title:

Quantification of Socs2 mRNA Expression and Cell Type Identification in Xenopus Laevis after Spinal Cord Injury

Project Abstract/Summary:

Some “lower” vertebrates are capable of recovering from central nervous system (CNS) injuries by regenerating damaged neural tissue. In previous work we found that reticular neurons in the hindbrain of Xenopus laevis tadpoles, whose axons descend into the spinal cord, have the ability to regenerate their axons after a complete transection (Gibbs & Szaro, 2006). As tadpoles metamorphose into frogs, they lose the ability to regenerate spinal cord axons, demonstrating a loss of regenerative capacity with advancing development (Gibbs et. al., 2011). When assayed by microarray analysis, we found an increase in Socs2 mRNA expression in tadpoles after spinal cord injury, and a decrease in the adult after injury. In addition, Socs2 had been shown to promote axon outgrowth in cultured mammalian neurons (Goldschmidt et. al., 2004). These data suggest that Socs2 may play a role in promoting axon regeneration after spinal cord injury, but its exact function has yet to be uncovered.

The purpose of our current study was to investigate messenger RNA (mRNA) levels of Socs2 at different time points after complete spinal cord transection in an attempt to understand its regulation and role in recovery from spinal cord injury. To more accurately quantify the amount of Socs2 mRNA, we used quantitative real-time polymerase chain reaction (qRT-PCR) to measure mRNA levels in the hindbrain. In addition, we will identify exactly which cells express Socs2 mRNA by using in situ hybridization on slides of sectioned hindbrain tissue. We plan to use these data to guide additional experiments intended to elucidate the functional significance of Socs2 in recovery from CNS injury.

Harley successfully quantified Socs2 expression in the hindbrain of tadpoles and adult frogs after spinal cord injury, as detailed in the abstract above. He found the increase in Socs2 was significant in the tadpole but not significant in the adult hindbrain. The change in expression was less than we had previously encountered using microarray analysis. Interestingly, with in situ hybridization Harley found Socs2 to be widely expressed in neurons, axons, and radial glia in the hindbrain. We hypothesize that the extent of Socs2 expression is making it difficult to dectect changes in expression that may otherwise be specific to individual brain nuclei. We will combine these results with those of a collaborator and submit them for publication in the future.

Project Dissemination:

Harley has presented posters of his findings at Morehead State University's Celebration of Student Scholarship for three consecutive years.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Harley will graduate from MSU June 2015, and has been accepted to medical school for the fall of 2015.

Eckstein, Meredith

Major:

Biomedical Science

Faculty Mentor:

David Peyton

Research/Project Title:

Detection of Environmental DNA by Water Filtration and PCR Gene Amplification

Project Abstract/Summary:

The traditional methodology of surveying aquatic populations of fish and amphibians by capture and morphological identification has been effective for species that have high population densities or characteristics that facilitate capture (diurnal habits, open-water feeding). Alternative techniques are required to survey rare species or those that are intrinsically less amenable to physical capture. Monitoring environmental DNA (eDNA) is one such technique that is non-invasive, does not require a physical specimen, and is sensitive enough to detect organisms present at low quantities. We describe in this poster our pilot study to develop an eDNA detection protocol using a controlled sample (aquarium water) with known species, and examine the sensitivity of the procedure. If successful, we will apply this technique to real populations as a way to determine the range of certain fish species including the Northern Brook Lamprey and the Trout-perch.

Project Dissemination:

N/A

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Ferryman, Craig J.

Major:

Biomedical Science

Faculty Mentor:

Christopher Cottingham

Research/Project Title:

Investigating the Role of Tricyclic Psychiatric Drugs as Adrenergic Receptors Ligands

Project Abstract/Summary:

This research project will investigate how various psychoactive drugs of the tricyclic chemical class drive, inhibit, or modulate cell signaling by the alpha2A adrenergic receptor. Joey will investigate whether and how these drugs affect alpha2A signaling in mammalian cell lines. This research will allow Joey to develop skills and techniques in mammalian cell culture and Western blotting. Further, the research has great clinical relevance, and will generate publishable data that is part of an exciting and novel story intended to develop into future grant applications and peer-reviewed publications.

During the fellowship year, Joey has mastered Western blotting and used that technique to characterize basic alpha2A adrenergic receptor signaling characteristics in Neuro2a cells. He has further used that technique to establish the expression of two important marker proteins in cell model of adipocyte differentiation as part of a new project investigating the role of the receptor in antipsychotic-induced weight gain.

Project Dissemination:

Oral presentation at 2014 KAS meeting in Lexington, KY.

Poster presentation at 2015 Celebration of Student Scholarship (earned Certificate of Merit).

Co-author on published book chapter.

Awards and/or Honors:

Earned Certificate of Merit for poster presentation at 2015 Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

Joey has completed his undergraduate degree, and will be starting in the graduate program at MSU this fall, working toward a Master of Science degree in Biology.

Helton, Minus R.

Major:

Biomedical Science

Faculty Mentor:

Kurt M. Gibbs

Research/Project Title:

Expression Profiling of miR-133b after Spinal Cord Injury in Xenopus Laevis Tadpoles and Adult Frogs

Project Abstract/Summary:

MicroRNAs (miRNAs) post-transcriptionally regulate gene expression, showing strong conservation of function from round worms to mammals. Previous work in zebra fish, a species that can regenerate its spinal cord into adulthood, showed that miR-133b played an important role in spinal cord regeneration after injury. Xenopus laevis tadpoles have the ability to regenerate their spinal cords, but lose this ability to do so after metamorphosis. In our study, we used quantitative real-time polymerase chain reaction (qRT-PCR) to determine the expression of miR-133b in spinal cord injured tadpoles and adult frogs. We compared the relative expression of mir-133b at various time points after injury to determine if the expression of miR-133b can be correlated with the developmental decline in spinal cord regenerative capacity. Data from qRT-PCR showed that in the tadpole, the operated samples showed the same amount of miR-133b expression as the un-operated samples than in the operated samples after injury. These data indicate that miR-133b levels decline after injury in the adult frogs, suggesting a decline in miR-133b expression with progressing development. Future experiments to uncover the mechanism that allows tadpoles to maintain miR-133b levels after injury and regenerate their spinal cord may help to guide efforts to develop therapeutic strategies in humans.

Minus successfully characterized the expression of miR-133b in the tadpole and adult frog hindbrain, demonstrating a developmental decline in miR-133b expression after spinal cord injury in the adult. Additionally, after knocking down the expression of miR-133b with morpholino oligonucleotides, he found significantly fewer axons crossing the injury site in the regeneration competent tadpole, suggesting that mir-133b is required for axon regeneration. These data will be used in combination with other experiments in a future publication.

Project Dissemination:

Society for Developmental Biology meeting 2014, Seattle Washington.

Kentucky Academy of Science, 2014.

Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2015.

Awards and/or Honors:

Outstanding Student in the College of Science and Technology.

Outstanding Biomedical Student.

Outstanding Pre-medical Student.

Post-Graduation Plans – Seniors Only:

Minus will graduate MSU in June 2015. He was accepted into medical school at University of Kentucky Medical School where he will begin in fall 2015.

Kirtland, Marina

Major:

Biomedical Science

Faculty Mentor:

David Peyton

Research/Project Title:

Detection of Environmental DNA by Water Filtration and PCR Gene Amplification

Project Abstract/Summary:

The traditional methodology of surveying aquatic populations of fish and amphibians by capture and morphological identification has been effective for species that have high population densities or characteristics that facilitate capture (diurnal habits, open-water feeding). Alternative techniques are required to survey rare species or those that are intrinsically less amenable to physical capture. Monitoring environmental DNA (eDNA) is one such technique that is non-invasive, does not require a physical specimen, and is sensitive enough to detect organisms present at low quantities. We describe in this poster our pilot study to develop an eDNA detection protocol using a controlled sample (aquarium water) with known species, and examine the sensitivity of the procedure. If successful, we will apply this technique to real populations as a way to determine the range of certain fish species including the Northern Brook Lamprey and the Trout-perch.

Project Dissemination:

N/A

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Applying to Masters in Public Health Programs

Knicely, Breanna

Major:

Chemistry

Faculty Mentor:

Allen Risk

Research/Project Title:

Vascular Flora of Eagle Lake Watershed

Project Abstract/Summary:

An ongoing inventory of vascular plant species was conducted throughout multiple areas of the Eagle Lake watershed during fall 2014 and spring 2015. Eagle Lake's watershed consists of an area of 198 hectares which is home to many different species of vascular flora. The samples gathered during field work will be supplemented by previously collected specimens from Eagle Lake that are stored in the Morehead State University herbarium. A total of 109 specimens representing 38 families, 69 genera, and 90 species were collected from the watershed. A threatened species in Kentucky, Stenanthium gramineum, featherbells, was found in two separate populations in the watershed, one located on a lower, east-facing slope and the other in a wetland area at the upper end of the lake. This species has been recorded in only 20 counties throughout Kentucky. Based on a species-area curve developed by reviewing previously published studies, it is predicted there are 389 species in the watershed of Eagle Lake, thus indicating there are 300 species left to be documented. This research was supported by an Honors Program Research Fellowship of Morehead State University.

Project Dissemination:

Vascular Flora Inventory and Species Richness Prediction for Eagle Lake Watershed, Morehead, KY (2015). Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Certificate of Merit, 2015 Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

N/A

Kremser, Victor

Major:

Biomedical Science

Faculty Mentor:

Allen Risk

Research/Project Title:

Christopher Cottingham

Project Abstract/Summary:

This research project will continue to investigate how various psychoactive drugs of the tricyclic chemical class drive, inhibit, or modulate cell signaling by the alpha2A adrenergic receptor. Victor will investigate whether and how these drugs affect alpha2A signaling in mammalian cell lines. Additionally, this research will begin to determine whether a link exists between the alpha 2A receptor and the common clinical side effect of antipsychotic-induced weight gain. Victor will also continue to apply his analytical skills to relevant behavioral data acquired by collaborators in Dr. Cottingham's previous laboratory. This research will allow Victor to continue developing his existing skills and techniques in mammalian cell culture and Western blotting. Further, the research has great clinical felevance, and will generate publishable data that is part of an exciting and novel story intended to develop into future grant applications and peer-reviewed publications.

During the fellowship year, Victor worked extensively on culturing pre-adipocyte cells and characterizing their differentation into adipocytes. His results have helped to establish a lot of basic information on the differentiation process, which will be used to guide the future development of the project regarding antipsychotic-induced weight gain.

Project Dissemination:

Poster presentation at the 2014 KAS meeting in Lexington, KY (earned 1st place award – see below)

Poster presentation at the 2015 Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Earned 1st place award in the undergraduate poster competition for the Physiology and Biochemistry section at the 2014 KAS meeting.

Post-Graduation Plans – Seniors Only:

N/A

Lucas, Bailey

Major:

Biology/Environmental Science

Faculty Mentor:

Sean O'Keefe

Research/Project Title:

Applying SHE Analysis to a Beetle Diversity Study

Project Abstract/Summary:

Biodiversity is a crucial component for conservation in any given area. Beetles comprise approximately 25,000 species in North America, and therefore, are a perfect focus measuring biodiversity. For this study, biodiversity measurements were derived from the SHE analysis, which stands for species richness, diversity measure H, and evenness. This is a distribution-free methodology that presents the information in an all-inclusive manner by using modified Shannon and Simpson variables, H1 and H2. Furthermore, unlike other indices, the SHE analysis can effectively use the number and abundance of species to analyze patterns and diversity values for biodiversity studies involving any grouping. This analysis creates new, more comprehensive possibilities for future biodiversity studies. These methods were applied to three different sampling sites taken in 2011 from the Daniel Boone National Forest. Each site has a different ecological history; one has been frequently burned, one has been less frequently burned, and one has not been burned, which serves as the control of the study. Capture methods include yellow pan traps. This study was funded in part by the Department of Biology and Chemistry. We also thank the USFS for permission to conduct this study in the Daniel Boone National Forest.

Project Dissemination:

Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

May, Jonathan

Major:

Biology

Faculty Mentor:

Allen Risk

Research/Project Title:

Vascular Plants of Eagle Lake Watershed

Project Abstract/Summary:

Jon collected and identified approximately 50 vascular plant specimens from the vicinity of Eagle Lake during the fall 2014 and spring 2015 semesters. He also partially developed an identification key to the plants he had collected and examined. He learned the basics of plant taxonomy, plant identification, and dichotomous key construction.

Project Dissemination:

No poster or oral presentation was given.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

McClanahan, Sarah

Major:

Biomedical Science

Faculty Mentor:

Michael E. Fultz

Research/Project Title:

The Effect of the Rho-kinase Inhibitor Y-27632 on Alpha-actin and Beta-actin Cytoskeletal Remodeling in Resting Contracting A7r5 Aortic Smooth Muscle Cells

Project Abstract/Summary:

Evidence in A7r5 smooth muscle cells suggests that differential remodeling of the alpha-actin and beta-actin cytoskeletal domains may explain the unique properties of smooth muscle. Data suggests that the redistribution of alpha-actin to podosomes is sensitive to phorbol 12, 13-dibutyrate (PDBu)-induced contraction while beta-actin does not remodel to the podosomes but instead remodel within stress cables that may function to hold the cell in a shortened configuration. However, the mechanism(s) regulating this differential remodeling is poorly understood. The effect of Rho kinase inhibition upon the alpha- and beta-actin cytoskeleton by Y-27632 was examined before and after PDBu stimulation in A7r5 smooth muscle cells. Data suggests that Rho kinase inhibition, previously shown to antagonize the development and maintenance of contraction in rat aortic smooth muscle tissue, blocks alpha-actin remodeling to the podosomes and dissolution of remaining alpha-actin stress cables. Beta-actin remodeling appears to be minimally affected. In addition, the inhibition of Rho-kinase appears to selectively affect alpha-actin structure in resting cells with dissolution of alpha-actin stress cables while beta-actin stress cables retain their original structure. These results suggest that Rho-kinase may regulate alpha-actin remodeling with a minimal effect beta-actin remodeling and therefore supports our hypothesis of differential remodeling of the alpha-actin and beta-actin cytoskeleton within contracting smooth muscle.

Project Dissemination:

McClanahan, Sarah and Dr. Michael E. Fultz (2014). The Effect of Rho-kinase Inhibitor Y-27632 on the Alpha-actin and the Beta-actin Cytoskeletal Remodeling in Resting and Contracting Smooth Muscle Cells, Kentucky Academy of Science 100th Annual Meeting, Lexington, KY, November.

Awards and/or Honors:

Abstract accepted for presentation at Posters-at-the-Capitol, however the event was cancelled due to weather.

Post-Graduation Plans – Seniors Only:

Sarah will graduate in May 2015. She will be attending the University of Pikeville College of Osteopathic Medicine in August 2015.

Patrick, Taylor

Major:

Biomedical Sciences

Faculty Mentor:

Geoffery Gearner

Research/Project Title:

Using DNA Barcoding to Identify Bacteria Isolated from Water Samples

Project Abstract/Summary:

Taylor started into Dr. Gearner's laboratory in the summer of 2014, volunteering her time to participate in a couple of projects. The University's Water Testing Laboratory occasionally receives samples from the Kentucky Division of Water, and is asked to enumerate, isolate and identify bacteria present in the samples. We embarked on an endeavor to utilize polymerase chain reaction to amplify the 16S rRNA gene from DNA extracted from the isolated bacteria. PCR products were assessed by agarose gel electrophoresis, then shipped to GeneWiz for DNA sequencing. Upon receipt of those sequences, we use BLAST to compare the sequences to those deposited in the Genbank database for possible genus and species identification. We are rather early in the project, and to date, have not been able to get a specific identification. However, we will utilize different DNA extraction protocols so that we can improve the quality of the PCR products. Taylor also received training in MSU's Water Testing Laboratory as a Certified Analyst, and provided assistance to students of BIOL 317 (Principles of Microbiology) in conducting bacteriological analysis of water samples.

Project Dissemination:

Alexandria Williams, Taylor Patrick, Justin Mason, and Dr. Geoffrey W. Gearner (2015). Utilizing DNA Barcoding to Identify Bacteria in Treated Water Samples. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Taylor is expected to complete her degree requirements in December 2015, and will apply to medical school.

Peterson, Megan

Major:

Biomedical Science/Theatre

Faculty Mentor:

Janelle Hare

Research/Project Title:

Analysis of Mutated UmuDAb proteins and their effects on gene regulation after DNA damage of Acinetobacter

Project Abstract/Summary:

I continued my project from Summer 2014 and followed up this work by determining whether mutated UmuDAb proteins are made by Acinetobacter cells harboring the mutated umuDAb gene, using Western blotting techniques. In this project I also made a mutant strain of A. baylyi that is missing the N-terminal region of the UmuDAb protein. I then performed experiments to determine whether, and how, these mutated proteins affect the expression of several genes after DNA damge. This will allow determination of how the parts of the UmuDAb protein function in regulating the DNA damage responsive gene expression throughout the genome of these cells. We found that without the N-terminal region of UmuDAb, the mutant cells could not repress gene expression in the absence of DNA--i.e. that the N-terminus is required for the protein to act as a repressor/regulator.

Project Dissemination:

I was the presenting student co-author on a poster at the Kentucky Academy of Sciences meeting in November 2014 based on my summer experiments. I was a co-author on a poster at the Celebration for Student Scholarship in April, 2015 at MSU. I am also a co-author on a similar poster that will be presented at the International Symposium on the Biology of Acinetobacter in Athens, Greece in June, 2015.

Peterson, M., Witkowski, T., Grice, A. N., and J. M. Hare. 2014. DNA damage phenotypes of growth deficiency and transcriptional regulation in ddrR mutants of Acinetobacter. Poster presentation at the Kentucky Academy of Sciences General Meeting, Lexington, KY.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, DeAnna Stinnett, Alison N. Grice, and Janelle Hare. 2015. Mutations in the N-terminal region of Acinetobacter baylyi UmuDAb that affect gene regulation after DNA damage. Poster Presentation at Celebration of Student Scholarship, Morehead, KY.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, Deanna Stinnett, Alison N. Grice, and Janelle Hare. 2015. The role of the N-terminal region of Acinetobacter baylyi UmuDAb in gene regulation after DNA damage. Poster presented at the International Symposium on the Biology of Acinetobacter. Athens, Greece.

Awards and/or Honors:

My poster presentation at the KAS meeting in November 2014 won 2nd place in the Microbiology Division. Our CSS poster was awarded meritorious honor.

Post-Graduation Plans – Seniors Only:

N/A

Petrey, Genna

Major:

Biomedical Sciences

Faculty Mentor:

Allen Risk

Research/Project Title:

Relationship between Climatic Variables and Canopy Position in Tsuga Canadensis (Eastern Hemlock) Growth Rates, Spaws Creek, KY

Project Abstract/Summary:

Dendrochronology and dendroclimatology are interdependent disciplines that allow us to use dating patterns and standardized tree-ring widths to find associations between annual rings and climatic variables, which can be used to reconstruct past climates. Most researchers avoid using sub-dominant trees when examining this association, because such trees have more confounding variables that can veil the climate signal. The purposes of this study were to determine the correlation between annual ring widths of Tsuga Canadensis and climatic trends, and to discover the effect of canopy position on the significance of these relationships. 182 samples (150 overtopped; 32 co-dominant) were taken from 91 Tsuga canadensis in 30 plots along Spaws Creek in Menifee County. The tree samples were analyzed to determine standardized annual ring width relationships to monthly precipitation, temperature, and PDSI (Palmer Drought Severity Index). The results for precipitation showed six statistically significant p-values for the current year and two for the previous year for co-dominant trees, compared to one current year significant value for overtopped trees. Temperature results were quite similar, with eight significant correlations in total, two for the previous year and six for the current year. Overtopped trees demonstrated three significant p-values in the current years. The PDSI results gave 14 significant p-values for co-dominant trees split evenly between previous and current years. Overtopped had seven current year values, and two significant values for the previous year. These results suggest a significant point; overtopped trees, contrary to current views, can be suitable indicators of climate.

Project Dissemination:

Petrey, Genna C. and Allen C. Risk. (2014). Relationship between Climatic Variables and Tsuga Canadensis (Eastern Hemlock) Growth Rates with Emphasis on Differentiating Canopy Position, Spaws Creek, KY. Oral presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Petrey, G.C., B. Rasp, and Allen C. Risk. (2014). Relationship between Climatic Variables and Canopy Position in Tsuga Canadensis (Eastern Hemlock) Growth Rates, Spaws Creek, KY. Poster presentation at the Kentucky Academy of Science Meeting, Lexington, KY, November.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Price, Brittani

Major:

Biomedical Science

Faculty Mentor:

Kurt Gibbs

Research/Project Title:

Characterization of Thyroid Hormone Receptor Expression in the Developing Hindbrain of Xenopus Laevis

Project Abstract/Summary:

As tadpoles, Xenopus laevis frogs are able to regenerate supraspinal axons following complete spinal cord transection. However, this ability to repair the damaged central nervous system (CNS) is lost with progressing development. The development of Xenopus laevis is controlled by thyroid hormone, whose signal is mediated through thyroid hormone receptors alpha and beta. We have previously identified populations of regenerating capacity of these animals. We are now characterizing the expression of thyroid hormone receptors in the tadpole hindbrain to better understand thyroid hormone specific effects on the regenerative capacity of hindbrain neurons.

Brittani characterized the expression of two thyroid hormone receptors (alpha and beta) in the hindbrain of Xenopus laevis tadpoles at a specific timepoint during development (NF 54) using in situ hybridization. She found that TRa is expressed in both the white and gray matter of the hindbrain while TRb is expressed strongly only in the gray matter. These and other data suggest that TRa is expressed earlier in development, probably associated with proliferation, while TRb is expressed at later developmental stages, primarily affecting terminal differentiation. Brittani's findings will guide our efforts with future experiments probing the molecular determinants of successful axon regeneration.

Project Dissemination:

Brittani presented her findings as a poster at the 2015 Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Brittani will graduate MSU on 5/2015, and has been accepted into the Ph.D., program in Biomedical Science at the University of Kentucky. She will pursue neuroscience as her major field of study.

Puckett, Brittney

Major:

Biology/Environmental Science

Faculty Mentor:

Sean O'Keefe

Research/Project Title:

Investigating Rowan County Lepidoptera Biodiversity: Part 3: Apatelodidae, Mimallonidae, Epiplemidae, and Notodontidae

Project Abstract/Summary:

All moths are herbivores, and therefore their diversity in a particular area is dependent on the diversity of plants in that area. Updating lists of moths found in an area thus is important as a surrogate for measuring the biodiversity of that area. According to the Kentucky Society of Lepidopterists Database, Rowan County, Kentucky has 484 unique moth species. An inventory of species from four Lepidopteran families: Notodontidae, Apatelodidae, Epiplemidae, and Mimallonidae, was made for Rowan County, Kentucky. Collection of new specimens (Pine Hills Survey) and working with Jonathan Smith and his collection has added to this list. There are 32 known species of Notodontidae in Kentucky, 20 of which were previously known from Rowan County. We have identified 11 new species from Rowan County. Within the family Apatelodidae, there are two species found in Kentucky and they were both previously known from Rowan County. Neither of the two species of Mimallonidae nor either of the two species of Epiplemidae found in Kentucky have been recorded from Rowan County. We add two species from each family to the Rowan County list. We thank the Department of Biology and Chemistry for partial support.

Project Dissemination:

Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Rasp, Ben

Major:

Biology

Faculty Mentor:

Allen Risk

Research/Project Title:

Relationship between Climatic Variables and Growth Rates in Oxydendrum Arboreum (Sourwood), an Understory Tree Species, Eagle Lake, Morehead, KY

Project Abstract/Summary:

Trees respond to their surroundings and thus are affected by climatic variation. Dendroclimatology is a science that examines the relationship between climate and tree growth. The primary objective of this study was to determine the correlations between climatic variables and the standardized annual ring widths of Oxydendrum arboretum (sourwood). Another objective of this study was to see how the species response to climate varied from low to high elevation. The study site is a 1000 m2 plot that is near Evans Branch upstream of Eagle Lake and approximately 1090 ft. in elevation. The study plot has three Quercus species, Nyssa sylvatica, Acer rubrum, and Pinus rigida co-occurring with O. arboretum. Using COFECHA, the quality control program that checks the accuracy of dated series, the initial output showed that there were two problem segments and, after four correctional runs, COFECHA reported zero problem segments. The annual standardized ring widths of O. arboreum will be compared to annual and monthly data for Palmer Drought Severity Index (PDSI), precipitation, and temperature. This research was supported by the MSU Honors Program Undergraduate Research Fellowship.

Project Dissemination:

Relationship between Climatic Variables and Growth Rates in Oxydendrum Arboreum (Sourwood), an Understory Tree Species, Eagle Lake, Morehead, KY (2015). Oral presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Stinnett, DeAnna

Major:

Biomedical Science/Pre-Pharmacy

Faculty Mentor:

Janelle Hare

Research/Project Title:

Creation of Non-cleavable umuDAb in Acinetobacter Baumannii

Project Abstract/Summary:

An A-Y or alanine and tyrosine amino acid site-directed mutation in the gene umuDAb in Acinetobacter baumannii prevents UmuDAb from self cleavage. My goal is to transfer this mutant from plasmid form into the bacterial cell using a three piece S.O.E. (splice overlap extension) PCR. After creation of the final mutated cell, further testing will be done to confirm the mutation's presence, and what the mutation's effect is on other gene regulation. I ended up making this mutation in the Acinetobacter baylyi species instead, to complete the Alms of my mentor's grant, and because this experiment then could be directly compared to other A. baylyi mutant strains. The intended uncleavable mutant was constructed and its phenotype on gene regulation in A. baylyi was tested.

Project Dissemination:

I was a co-author on a poster at the Celebration of Student Scholarship in April, 2015 at Morehead State University. I am also a co-author on a similar poster that will be presented at the International Symposium on the Biology of Acinetobacter in Athens, Greece in June, 2015.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, DeAnna Stinnett, Alison N. Grice, and Janelle Hare (2015). Mutations in the N-terminal Region of Acinetobacter Baylyi UmuDAb that Affect Gene Regulation after DNA Damage. Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, DeAnna Stinnett, Alison N. Grice, and Janelle Hare (2015). The Role of the N-terminal Region of Acinetobacter Baylyi UmuDAb in Gene Regulation after DNA Damage. Poster presentation at the International Symposium on the Biology of Acinetobacter, Athens Greece.

Awards and/or Honors:

Our Celebration of Student Scholarship poster was awarded meritorious honor.

Post-Graduation Plans – Seniors Only:

N/A

Washburn, Brooke

Major:

Environmental Science

Faculty Mentor:

David J. Eisenhour

Research/Project Title:

1. Dispersal Ability of the Frecklebelly Darter (Percina Stictogaster)
2. Conservation Status of Trout-perch (percopis Omiscomaycus) in Kentucky

Project Abstract/Summary:

1. The Frecklebelly Darter, Percina stictogaster (Burr and Page), is restricted to high-quality streams in the Kentucky River and Green River drainages. This species has narrowly documented basic life history information, including dispersal ability. Among the 12 darter species found in our study site in the Red River, Menifee and Powell counties, Kentucky, P. stictogaster is the most pelagic. Using a reach-specific tagging system we compared its movements with three benthic and two semi-pelagic darters. We tagged a total of 936 individuals of six darter species using subcutaneous injections of visible implant fluorescent elastomer (VIE) from May 2012 – May 2013. Fishes were tagged from four reaches of the Red River, spanning a total of 440 m. These reaches plus an additional four reaches (two upstream and two downstream), 1470 m in total, were surveyed by snorkeling or seining to detect previously tagged fishes. The VIE tags are brightly colored and easily visible underwater. Over six sampling sessions spanning June 2012 – September 2013 a total of 54 darters were recaptured, including 17 P. stictogaster. Our recapture data indicated three things. First, our studied darters seemed to move little, as only 7 of 54 darters were recaptured in a different site than tagged. Second, most movements (6 of 7) were upstream, perhaps compensating for downstream drift during early life history. Third, the pelagic and semipelagic Percina darter species moved more than the benthic Etheostoma species. The greater dispersal tendencies of Percina darters may make them more vulnerable to in-stream barriers than benthic darters. This data collection phase of this project has finished; Brooke made several presentations at local and national venues and we have a jointly authored manuscript in review.
2. The Trout-perch (Percopis omiscomaycus) is a small fish with a mostly northern distribution in the United States; the southern edge of its range extends into northeast Kentucky. My experience with numerous collections suggests it is declining in Kentucky, although no formal status survey has been done. Brooke will "data-mine" historical collection information from museum holding throughout the U.S. to determine historical patterns of abundance. We will survey streams historically occupied by Trout-perch using seining (150 m stretch, or at least 8 pools). Trout-perch found will be measured and released. Also we will collect habitat variables (e.g., stream width, depth, riparian zone condition, substrate type, amount of siltation, watershed area, etc). Goals are (1) describe current and historical distribution of this fish in Kentucky; (2) determine which habitat variables are statistically correlated with Trout-perch abundance and/or presence. This is in the early stages of a multiyear study. Brooke has presented once at Kentucky Academy of Science and will present at Celebration of Student Scholarship in April 2015.

Project Dissemination:

Submitted: Water-column Position and Movements of Six Darters (Teleostei: Percidae) in an Eastern Kentucky Stream. Ecology of Freshwater Fish.

Washburn, B., C.R. Gingras, and D.J. Eisenhour (2013). Dispersal Ability of the Frecklebelly Darter (Percina Stictogaster). Oral Presentation, Native American Fish Society Meetings, Cumberland State Park, KY, April, Kentucky Academy of Science meetings, Morehead, KY, November, and Southeastern Fishes Council meetings, Lake Guntersville, AL.

Washburn, B. C.R. Gingras, J. Patrick, and D.J. Eisenhour (2015). Dispersal Ability of the Frecklebelly Darter (Percina Stictogaster) NCUR meeting, Lexington, KY, April, and Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Washburn, B.A., and D. J. Eisenhour (2015). A Northern Fish in a Southern Land: Conservation Status of Trout-Perch (Percopsis Omiscomaycus) in Lewis County, Kentucky, Kentucky Academy of Science meetings, Lexington, KY, November.

Awards and/or Honors:

November, 2013: 2nd place for oral presentations, Southeastern Fishes Council, Lake Guntersville State Park, Alabama.

November, 2013. 1st place for oral presentations, undergraduate, Kentucky Academy of Science, Morehead, KY.

2014. 2nd place, poster competition, zoology, Kentucky Academy of Science meetings, Lexington, November.

Post-Graduation Plans – Seniors Only:

Will be starting M.S. program in Biology at Austin Peay State University, Fall, 2016.

Webb, Mary

Major:

Biology

Faculty Mentor:

Allen Risk

Research/Project Title:

Herbaceous Plant Species Floristic Inventory of Carter Caves State Resort Park, Carter County, KY

Project Abstract/Summary:

Carter Caves State Resort Park, located in north-central Carter County and established in 1946, covers over 2,000 acres and is rich in geological features. The geology of the park is dominated by sandstone and limestone and includes caves, sinkholes, natural bridges, box canyons, deep gorges, steep-sided cliffs, and rockhouses. An ongoing inventory of the herbaceous angiosperms in the park, including specimens from an assessment of the Morehead State University Herbarium and those collected in the 2013 and 2014 spring and fall semesters, has so far produced 355 specimens comprising 241 different species. The plant families best represented by this preliminary inventory are Asteraceae (aster family) and Cyperaceae (sedge family) with 34 and 26 species, respectively. Castilleja coccinea (L.) Spring (Indian Paintbrush), listed as endangered by the Kentucky State Nature Preserves Commission in Kentucky, was found by W.A. Welter in 1939, but has not been observed in the present study. In 2015, additional specimens will be collected from areas and habitats not yet visited within the park in order to further document the herbaceous flora of this biologically diverse state park. This project was supported by an MSU Undergraduate Research Fellowship.

Project Dissemination:

Webb, Mary D. and Risk, Allen C. (2013). Herbaceous Plant Species Floristic Inventory of Carter Caves State Resort Park, Carter County, KY. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Webb, Mary D. and Risk, Allen C. (2013). A Preliminary Herbaceous Plant Species Floristic Inventory of Carter Caves State Resort Park, Carter County, KY. Poster presentation, Kentucky Academy of Science Annual Meeting, Morehead, KY, November.

Webb, Mary D. and Risk, Allen C. (2014). Herbaceous Plant Species Floristic Inventory of Carter Caves State Resort Park, Carter County, KY. Oral presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Williams, Alexandria S.

Major:

Biomedical Science

Faculty Mentor:

Geoffrey Gearner

Research/Project Title:

Using DNA Barcoding to Identify Bacteria Isolated from Water Samples

Project Abstract/Summary:

Alex started in Dr. Gearner's laboratory in January 2014. She had previously worked as a URF in Dr. Matt Ellison's lab. The University's Water Testing Laboratory occasionally receives samples from the Kentucky Division of Water, and is asked to enumerate, isolate and identify bacteria present in the samples. We embarked on an endeavor to utilize polymerase chain reaction to amplify the 16S rRNA gene from DNA extracted from the isolated bacteria. PCR products were assessed by agarose gel electrophoresis, then shipped to GeneWiz for DNA sequencing. Upon

receipt of those sequences, we use BLAST to compare the sequences to those deposited in the Genbank database for possible genus and species identification. We are rather early in the project, and to date, have not been able to get a specific identification. However, we will utilize different DNA extraction protocols so that we can improve the quality of the PCR products. Alex also received training in MSU's Water Testing Laboratory as a Certified Analyst, and provided assistance to students of BIOL 317 (Principles of Microbiology) in conducting bacteriological analysis of water samples.

Project Dissemination:

Alexandria Williams, Taylor Patrick, Justin Mason, and Dr. Geoffrey W. Gearner (2015). Utilizing DNA Barcoding to Identify Bacteria in Treated Water Samples. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Alex graduated in May with a B.S. Biomedical Sciences degree, and will enter the University of Kentucky's Medical Laboratory Sciences Program in August.

Williams, Logan

Major:

Veterinary Science

Faculty Mentor:

Sean O'Keefe

Research/Project Title:

A Meta-Analysis of Sampling Techniques for Spider Surveys

Project Abstract/Summary:

We located nearly 200 peer-reviewed, published, scientific articles that incorporated quantitative and semi-quantitative techniques for sampling spiders. From these articles we gathered data regarding sampling procedures such as trapping method (e.g. pitfall, sweeping, beating plants, hand extraction, etc.), duration of trapping (number of days), number of traps used, preservative used (e.g. polypropylene glycol, alcohol, water, etc.), trap size (for pitfall traps, diameter and volume of cup), as well as sampling design (random or stratified plots, arrangement of sampling within plot, etc.). The goal of this study is to determine which survey/sampling methodologies are most commonly used and to determine the common means of standardizing these techniques for measuring the biodiversity of spiders. A meta-analysis of quantitative survey techniques for spiders has yet to be published. This research was funded in part by the Department of Biology and Chemistry and in part by the Honors Program.

Project Dissemination:

Poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Witkowski, Travis

Major:

Biomedical Science

Faculty Mentor:

Janelle Hare

Research/Project Title:

Identifying the Role of ddrR in Upregulation of Genes in the Acinetobacter Baylyi and Acinetobacter Baumanii DNA Damage Responses

Project Abstract/Summary:

Acinetobacter baylyi undergoes a dramatic change in gene expression after DNA-damage. This bacterium, however, does not contain the LexA repressor identified in Escherichia coli as the regulator of SOS mutagenesis genes. Previous studies demonstrated that the error prone polymerase subunit UmuDAb binds like a repressor to the promoters of the genes umuDAb and ddrR, suggesting that it may play a regulatory role much like LexA. In A. baylyi, in addition to the regulatory role of UmuDAb, there are three additional regulons of DNA damage-induced genes: those regulated by RecA, both UmuDAb and RecA, and neither RecA or UmuDAb. ddrR is a gene of unknown function that is induced after DNA damage and regulated by UmuDAb. We used real time qualitative PCR experiments to compare the wild-type A. baylyi strain to a ddrR mutant strain to test the hypothesis that ddrR has a

role in the regulation of the DNA-damage induced genes. This RT-qPCR data was gathered from induced genes regulated by UmuDAb, RecA, both UmuDAb and RecA, or neither RecA nor UmuDAb to see how or if ddrR is involved in regulating the expression of these four regulons. We found that ddrR is required for regulating the same set of genes as UmuDAb is. We plan on extending this work to investigate whether, as in the ADP1 strain, another Acinetobacter species also uses both ddrR and umuDAb to regulate its induction of genes after DNA damage. We plan to trying to uncover the specific role of ddrR in this process.

I also worked on another project: to determine what region(s) of the UmuDAb protein are required for its action as a regulator: specifically hypothesizing that its N-terminus is required for its action as a repressor. I helped train beginning research students in Dr. Hare's laboratory by working with them on constructing various mutants of the UmuDAb protein of Acinetobacter baylyi, and performing experiments with them to measure the effects of these mutations on the gene expression of DNA damage-inducible genes. We found that the N-terminus is required for repression, and that a specific mutation I proposed as being key in this N-terminal region is indeed required for the repression we observed.

Project Dissemination:

I was a co-author on a poster at the Celebration for Student Scholarship in April, 2015 at MSU. I am also a co-author on a similar poster that will be presented at the International Symposium on the Biology of Acinetobacter in Athens, Greece in June, 2015. I expect to be a co-author on a publication about the N-terminal region that Dr. Hare is writing currently.

Peterson, M., Witkowski, T., Grice, A. N., and J. M. Hare. 2014. DNA damage phenotypes of growth deficiency and transcriptional regulation in ddrR mutants of Acinetobacter. Poster presentation at the Kentucky Academy of Sciences General Meeting, Lexington, KY.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, DeAnna Stinnett, Alison N. Grice, and Janelle Hare. 2015. Mutations in the N-terminal region of Acinetobacter baylyi UmuDAb that affect gene regulation after DNA damage. Poster Presentation at Celebration of Student Scholarship, Morehead, KY.

Megan Peterson, Travis Witkowski, W. Kathyrne Wells, Deanna Stinnett, Alison N. Grice, and Janelle Hare. 2015. The role of the N-terminal region of Acinetobacter baylyi UmuDAb in gene regulation after DNA damage. Poster presented at the International Symposium on the Biology of Acinetobacter. Athens, Greece.

Awards and/or Honors:

Our Celebration of Student Scholarship poster was awarded meritorious honor.

Post-Graduation Plans – Seniors Only:

I am entering The Ohio State's Biomedical Science Ph.D., program in June, 2015.

Uchida, Emma

Major:

Biomedical Science

Faculty Mentor:

Mark Blankenbuehler

Research/Project Title:

Synthesis of a Celebrex Analogue Containing Fused 5-5 Ring

Project Abstract/Summary:

The research is focused on synthesizing and reacting unique beta-diketones with the same substituted hydrazine to create the Celebrex analogues. The method for synthesizing these diketones mimics the general procedure detailed in Alan Katritzky's Synthesis of β-Dicarbonyl Compounds Using 1-Acylbenzotriazoles as Regioselective C-Acylating Reagents. The major efforts so far have been to create a fused 5-5-ring system using cylclopentenone. Results from NMR and TLC suggest that a pure diketone product was not produced; however, IR indicates the generation of carbonyls during the diketone synthesis and the disappearance of the carbonyl following the hydrazine reaction. Further experimentation will be done to improve the purity and yield of the diketone precursor, and subsequent generation of a Celebrex analogue.

Project Dissemination:

None. One semester of work was not enough to warrant a presentation.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

DEPARTMENT OF EARTH AND SPACE SCIENCE

Brooke, Sharon J.

Major:

Earth Systems Science/Geology

Mentor:

Jen O'Keefe

Research/Project Title:

What are Local Bees Eating?

Project Abstract/Summary:

Pollen content of honey samples can be used for honey "typing." This is the primary way to differentiate different plant contributions to a honey and is required prior to sale of labeled honey in most countries and is used to promote bee-friendly gardening. In the United States this is done less frequently, as there are few trained experts, or "Melissopaynologists." Due hive collapse syndrome and increasing export, its use is increasing and more trained Melissopaylnologists are needed. This small study represents two semesters of training exercises in Melissopalynology. Three samples of local honey were obtained for analyses: two from the MSU Browning Orchard, and one from Honey and Bee Connection. The overarching question for the study is "What are local bees eating?" This information is used to "type" local honey samples and provide suggestions to local beekeepers on which bee-preferred plants should be cultivated. Each sampled honey has a unique pollen fingerprint, which includes several basic types: Tulip Poplar, Apple, Hickory Magnolia, Oak, Clover, and Ragweed, as well as grains unique to each sample. The proportion of pollen grains in each sample is very different, and for the MSU samples, recommendations are given for future hive placement.

The MSU honeys are category 2 honeys, containing between 20,000-100,000 pollen grains per 10 g of sample. MSU 2013 did not have a predominant pollen type (Figure 3); its secondary pollen type (Category B), which was the most dominant form, is Malus sp. (apple). MSU 2014 also did not have a dominant pollen type, but has three secondary pollen types (Figure 4); Malus sp. (apple), Cary asp. (hickory), and Hypericum sp. (yellow St. John's Wort). The HB 2013 sample is remarkably sparse but also wax-rich (Figure 3). An accurate analysis could not be obtained.

Processing was somewhat problematic. Wax was not effectively removed from the samples, which may contribute to the lack of results for HB 2013. Future work will include improvements to the processing to remove wax. Staining was also an issue. In some cases this made identification easier.

Project Dissemination:

2015 Celebration of Student Scholarship, April, 2015.

Planned: Extended poster presentation at the 2015 Joint Meeting of AASP-TPS with GSA in Baltimore, MD, November, 2015.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Continuing education at Morehead State University in the Master's in Space Systems Engineering program

Grindrod, Jennafer L.

Major:

Space Science

Mentor:

Jeffery Kruth

Research/Project Title:

Microprocessor Selection and Qualifications for Command and Data Handling Subsystem for the Morehead Cosmic X-Ray Background Nano-Satellite.

Project Abstract/Summary:

The Command and Data Handling (C&DH) Subsystem is the "brain" of a satellite. The C&DH allows Control and Data transit to occur between the other subsystems, and also serves as the central processing unit. Stored collected data in the C&DH subsystem is transmitted via radio to the Morehead State University's ground station. Processor selection is vital to implementing a successful C&DH subsystem. The microprocessor must meet many often conflicting requirements in order to function properly in the satellite. Requirements include adequate processing capability and clock speed to accommodate the spacecraft subsystems and payload. An additional key requirement is survival in the harsh space environment. The microprocessor that will be used in the C&DH subsystem is the Intel

Edison, which was down selected from a range of processors that fit the requirements and budget. The Intel Edison performed as expected when subjected to thermal vacuum testing. Further environmental testing, such as vibration and radiation beam testing, is necessary to complete the performance profile, however, I believe that the microprocessor will continue to perform as required and expected.

Project Dissemination:

Poster(s) and Oral Presentation(s):

Grindrod, Jennafer L. And Professor, Bob Twiggs. (2015). Microprocessor selection & qualification for Command & Data Handling Subsystem for the Morehead Cosmic X-ray Background Nano-satellite, Kentucky Academy of Science Annual Meeting, Lexington, Kentucky, November.

Grindrod, Jennafer L. and Professor, Bob Twiggs. (2015). Microprocessor selection & qualification for Command & Data Handling Subsystem for the Morehead Cosmic X-ray Background Nano-satellite, Celebration of Student Scholarship, Morehead, KY, April.

Grindrod, Jennafer L. and Professor, Bob Twiggs. (2015). Microprocessor selection & qualification for Command & Data Handling Subsystem for the Morehead Cosmic X-ray Background Nano-satellite, Senior Design Presentation, Morehead, KY, May.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Continuing education at Morehead State University in the Master's in Space Systems Engineering program.

Haught, Kennedy

Major:

Space Science

Mentor:

Benjamin Malphrus

Research/Project Title:

Small Satellite Mission Operations at Morehead State University

Project Abstract/Summary:

Small satellite programs involving picosatellites, nanosatellites and microsatellites operating in low Earth orbit are increasing in number significantly due to new advanced capabilities being fielded on these small space platforms. National space agencies, small and large aerospace companies and universities have launched and are operating an ever-increasing number of CubeSats in particular. By the beginning of 2014, over 100 CubeSats will have flown, with exponentially increasing numbers in development, in part as a result of planned constellations each involving 10s of CubeSats. The rising number of CubeSat missions poses a challenge for mission operations, particularly for developers planning constellations of CubeSats. Services provided by commercial ground networks are often beyond the reach of CubeSat developers because of the significant costs associated with these services. Amateur radio-based ground stations operated by university groups and others are capable of servicing only low-bandwith operations. Amateur radio-based ground stations become less than ideal for performing mission operations services with increasingly sophisticated payloads that require greater data throughput. A potential solution lies in the implementation of high gain ground stations operated by small-scale, cost-effective organizations like universities and small commercial ventures. One example is the 21 Meter Space Tracking Antenna operated by the Space Science Center at Morehead State University (MSU). The MSU 21-m Space Tracking Antenna is capable of providing telemetry, tracking, and command (TT&C) services for a wide variety of space missions but is particularly well-suited for servicing smallsats.

The 21-m has the capacity to track satellites in low Earth orbit (LEO) with extremely low transmission power, as well as satellites at geostationary, lunar, and Earth-Sun Lagrangian orbits. The system currently operates at UHF, L-, S-, C-, X- and Ku-bands. The 21-m has extremely good surface (0.0166” RMS) and tracking accuracies (0.005° RMS at Ku-Band), and excellent pointing (<= 0.01° RMS). When combined with 21-m aperture area gains, this supports smallsat missions beyond LEO. The team has recently upgraded hardware and software systems to support remote operation by off-site operators, and has begun the process of upgrading the system to Space Link Extension (SLE) compliance. The instrument is primarily operated by undergraduate students who work in the associated laboratories. They gain hands-on training in space communications systems and techniques, turning our laboratories into educational environments for workforce training. The 21-m is also used as a test bed for advanced RF systems developed by faculty and collaborators. It has been employed in a growing portfolio of satellite missions serving as the primary high-bandwidth ground station for Kentucky Space LLC’s KySat-1, Planet Lab’s Dove-2, and Morehead State’s Cosmic X-Ray Background NanoSatellite (CXBN). It has also served as a secondary ground station for the University of Roma GAUSS Group’s EduSat missions. The system has been employed in the testing and calibration of the NASA Lunar Reconnaissance Orbiter synthetic aperture radar (mini-SAR) at X- and S-bands.

This work will involve having Sarah operate downlink and uplink passes for current nanosatellite missions managed by the Space Science Center and missions for which the Center provides ground operation support, all of which are designed to train undergraduate students as the next workforce in support of the ground operations and satellite development industries. Future missions that anticipate using the 21-m, include CXBN-2, UniSat-5, KySat-2, and future Planet Labs Dove satellites.

Kennedy is contributing to mission operations by performing tracking passes for these space missions with the UHF Yagi antenna systems and is training on the operations of the 21 M Space Tracking Antenna. **Project Dissemination:**

The results of this project were presented by the student at the annual CubeSat workshop in San Luis Obispo, CA (which took place the same time as COSS). This student had a rigorous schedule this year, and was not able to commit to a full time project, but was still involved in weekly meetings and observed new projects taking place.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Kosakowski, Alekzander R.

Major:

Astrophysics

Mentor:

Thomas Pannuti

Research/Project Title:

Spatially Resolved X-ray Spectroscopy of Mixed-Morphology Supernova Remnants W28 and IC443

Project Abstract/Summary:

Mixed-morphology supernova remnants are a peculiar class of supernova remnant proposed by Rho & Petre in 1998 to describe supernova remnants that exhibit a shell-like radio morphology (such as Cassiopeia A) and a contrasting center-filled X-ray morphology (such as the Crab Nebula). There are a total of 294 known supernova remnants within the Milky Way Galaxy (Green, 2014), of which between 8% and 25% are mixed morphology.

The goal of this project is to obtain a sample of X-ray spectra from spatially separated regions across Galactic mixed morphology supernova remnants (MMSNRs) IC442 (G189.1+3.0) and W28 (G6.4-0.1) by using data collected through pointed observations by the Chandra X-ray Observatory (CXO) and to analyze, on a small scale, the X-ray emission properties of these MMSNRs.

Project Dissemination:

Oral presentation: Kosakowksi A.R. and Pannuti, T.G. (2015). Spatially Resolved X-ray Spectroscopy of the Galactic Mixed-Morphology Supernova Remnant IC 443 (G.189.1+3.0). Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Oral presentation: Kosakowski A.R. and Pannuti, T.G. (2014). Spatially Resolved Spectral Analysis of Galactic Supernova Remnant W28 with the Chandra X-ray Observatory. Kentucky Academy of Science, Lexington Convention Center, Lexington, KY, November.

Oral Presentation: Kosakowski, A.R. and Pannuti, T.G. (2014). Spatially Resolved Spectral Analysis of Galactic Supernova Remnant W28 with the Chandra X-ray Observatory. American Physical Society Ohio Section Meeting, Shawnee State University, Portsmouth, OH, October.

Awards and/or Honors:

Third place undergraduate presentation. Kentucky Academy of Science, November, 2014.

Post-Graduation Plans – Seniors Only:

Accepted into, and will be attending, the Department of Physics and Astronomy Ph.D., program at the University of Oklahoma in Norman, Oklahoma, starting in the Fall 2015 semester.

Taulbee, Zachary S.

Major:

Space Science

Mentor:

Jeffery Kruth

Research/Project Title:

Mechanical Systems for Spacecraft

Project Abstract/Summary:

The mechanical systems of spacecraft forcomprise the structure of the spacecraft bus. The spacecraft bus is a major part of the structural subsystem of a spacecraft which provides a place to attach components internally and externally, and to house delicate modules requiring a measure of thermal and mechanical stability. It is an integral card chassis for supporting the circuit boards of radio equipment, data recorders, computers, gyroscopes and other component. The bus also establishes the basic geometry of the spacecraft, and it provides the attachment points for appendages such as booms, antennas and scan platforms. This project focuses on the mechanical design and fabrication of cubesat buses for a variety of spacecraft developed by the Space Science Center.

Project Dissemination:

*Mathew Hardin, *Zachary Taulbee, and Jeffery Kruth (2015). Determining Attitudes of Satellites within Earth's Gravitational Field with the Helmholtz Coil. Oral presentation. Department of Earth and Space Science, College of Science and Technology.

*Mathew Hardin, *Zachary Taulbee, and Jeffery Kruth (2014) Determining Attitudes of Satellites within Earth's Gravitational Field with the Helmholtz Coil. Oral presentation. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

Certificate of Participation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Post-Graduation Plans – Seniors Only:

Currently planning on applying to graduate schools and seeing how much financial help that is available for furthering my education. I will also be looking into careers that could help me fund my education while also working part-time.

Wilczewski, Sarah

Major:

Space Science

Mentor:

Ben Malphrus

Research/Project Title:

Morehead Satellite Communications Operations.

Project Abstract/Summary:

The Morehead State University Space Science Center operates several radio frequency antenna systems that are used for satellite mission support and for radio astronomy research. The antenna systems include a 21-Meter Space Tracking Antenna and several smaller Yagi Antennas. The antennas have been used to track many satellites over the years such as the Cosmic X-Ray Background NanoSatellite, Uni-Sat 5, KentuckySat-2 and several other satellites. The 21- Meter is able to track satellites in Lower Earth Orbit, Middle Earth Orbit, Geostationary Orbit and Lunar Orbits and operates in UHF, L-Band, S-Band, C-band, and lower X-Band. The Yagi Antennas are used extensively in tracking satellites and operate in the UHF and VHF bands. One of our more recent projects was tracking the International Sun/Earth Explorer 3, a science satellite built by NASA that was launched in 1978 and that flew by the Earth late July 2014 on its return from deep space. The ground segment is operated largely by Undergraduate Students who learn to track satellites with the Yagi Antennas and to gain experience and then ultimately operate the more sophisticated and capable 21- Meter.

Project Dissemination:

Posters and Oral Presentations:

Kennedy Haught, Sarah Wilczweski and B. Malphrus, M. Combs, J. Kruth, K. Brown, B. Twiggs, E. Thomas, R. Kroll, R. McNeil (2014, April) Space Science Center, Morehead State University Morehead KY, 40351, T. Clements K. Kimel, Kentucky Space LLC, Lexington KY, 11th Annual Cubesat Workshop, San Luis Obisopo, California, April 2014

Sarah Wilczewski, Dr. Benjamin Malphrus, Robert Twiggs, and Robert Kroll (2014) Department of Earth and Space Sciences, Morehead State University, Morehead KY 40351, The Kentucky Academy of Science 100th Annual Meeting, Lexington, Kentuky, November.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

DEPARTMENT OF HEALTH, WELLNESS, AND HUMAN PERFORMANCE

Maldonado, Dylan

Major:
Exercise Science
Faculty Mentor:
Dayna Seelig
Research/Project Title:
Pre-Workout Supplementation Safety and Factors Surrounding Pre-Workout Supplementation
Project Abstract/Summary:
Pre-Workout supplements are widely used especially for resistance training. Many of the users compile no research and just take their friends advice on choosing the supplements. There is not very much research surrounding why do individuals choose the supplements they choose? We have devised a survey to attempt to answer a few questions such as: Are the individuals taking the pre-workout supplement as directed by the label? Are the individuals doing any research prior to consume? The survey is still in the early stages. What factors play the biggest role in choosing the supplement the individuals choose to consume? The survey is still in the early stages. We have currently received 53 responses. We hope to finish with over 150 responses.
Project Dissemination:
Due to a mix up in submission for the Celebration of Student Scholarship, Dylan did not present. However, he did present his findings to two classes in HWHP the week immediately after the Celebration. Both courses were appropriate for his topic: Evaluations in HWHP and Nutrition.
Awards and/or Honors:
N/A
Post-Graduation Plans (Seniors only):
He is a senior that will be applying to PT programs.

Guerrant, Joanna

Major:
Biomedical Science
Faculty Mentor:
Gina Gonzalez
Research/Project Title:
Motor Development and Skill Acquisition through the Lifespan
Project Abstract/Summary
Mastering physical movement occurs through motor learning and experience. Motor development is needed for successful acquisition of sport and other physical skills. Acquiring new skills is significantly more effective until early adolescence than later in life, and a lack of motor skills has been associated with decreased physical activity later in life, which has been linked to a variety of hypokinetic diseases. The project included an extensive literature review that discussed motor learning across the lifespan. The review focused on motor skill acquisition, short and long-term experiential learning, and feedback mechanisms within children, young adults and middle age to older adults. Based on this literature review, future directions will include examining the number of trials it takes to master a new skill and self-regulatory feedback mechanisms that are most successful in each age category.
Project Dissemination:
Guerrant, Joanna, and Gonzalez, G. (2015). Motor Development and Skill Acquisition through the Lifespan, poster presentation at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.
Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND PHYSICS

Allen, Joshua

Major:
Physics/Math

Mentor:
Ignacio Birriel

Research/Project Title:
Radiation Measurement of Black Organic Shale Outcrops in Rowan County, KY

Project Abstract/Summary:
The purpose of this research is to see how much radiation local outcrops of black organic shale emit. The black organic shale family includes the following radioactive rocks: Ohio Shale, Sunbury Shale and Bedford Shale and can be found in outcrops throughout Rowan County. These rocks can be found at the surface but most commonly under the surface and are approximately 60 meters in thickness. The amount of radiation that is emitted affects all of the people that live in the area since they are constantly being exposed to the radiation being emitted. The radiation that is emitted can affect the crops growing in the area, such as tobacco. Tobacco plants can absorb alpha particles from the environment that can then cause harm to humans. A GAMMA-SCOUT radioactive detector was used to measure the radioactivity. It is standard radiation detector with a halogen filled Geiger-Muller counter tube.

Project Dissemination:
Joshua Allen, Lacee Pyles, and Dr. Ignacio Birriel (2015). Radiation Measurement of Black Organic Shale Outcrops in Rowan County, KY. Poster presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

In the future, this research will be reported in at least two sources, an oral presentation at the 2015 Kentucky Academy of Science Annual Meeting at Northern Kentucky University and a manuscript will be submitted to the Journal of the Kentucky Academy of Science.

Awards and/or Honors:
Received the 2015 Kentucky Academy of Science Undergraduate Research Grant to forward this research during the summer of 2015.

Post-Graduation Plans – Seniors Only:
N/A

Alloway, Bethany

Major:
Math/Computer Science

Mentor:
Doug Chatham/Duane Skaggs/Robin Blankenship

Research/Project Title:
N+K Queens (Studies in Separation in Graphs

Project Abstract/Summary:
The N + K Queens Problem is a problem in graph theory that requires the placing of N queens and K pawns on an n x n chessboard in such a way that no two queens attack each other. Recently, we have been exploring an expansion of this problem by placing non-attacking queens and pawns on an n x n torus. We will be discussing patterns that we have found on certain boards and how we plan to implement them in a computer program designed to solve any board size.

Project Dissemination:
Alloway, Bethany, (2014). N+K Queens, Shenandoah Undergraduate Mathematics and Statistics (SUMS) Conference, Harrisonburg, VA, October.

Alloway, Bethany, Johnson, Iris, McGinnis, Michael, Blankenship, Robin, Chatham, Doug, and Skaggs, Duane (2015). Mathematics and Chess: A Queen Approach. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:
AAUW – Cave Run Scholarship

Certificate of Merit, Celebration of Student Scholarship, Morehead State University.

Post-Graduation Plans – Seniors Only:
N/A

Byrd, Jonathon

Major:

Computer Science

Mentor:

Sherif Rashad

Research/Project Title:

Behavior-based Security in Mobile Computing Environment

Project Abstract/Summary:

As mobile networks become more prominent in our society, security in mobile computing environment is a growing issue. For example, the problem of intrusion detection becomes more difficult in mobile networks, where different structures of mobile networks are integrated to provide better quality of service every time and everywhere. The goal of our research is to design and implement new behavior-based security monitoring and intrusion detection techniques for mobile computing environment using mobile data mining and machine learning technology. We focused on designing and developing an application for Android operating systems that can detect the behavior of mobile users and build behavior models for these users. The behaviors models can be used effectively in real time to detect intrusions and other security threats. Our goal is to design fast and effective algorithms that can work with the available resources in the mobile computing environment. We designed and implemented mobile applications to collect different behavior data of mobile users. We used data mining techniques and algorithms to analyze the collected data. The experimental results show that the proposed techniques are promising.

Project Dissemination:

Jonathon Byrd and Sherif Rashad (2014). Predicting Behavior of Mobile Users Using Mobile Computing Algorithms. 100th Annual Meeting of the Kentucky Academy of Science, Computer and Information Sciences Section, Lexington, KY, November.

Jonathon Byrd and Sherif Rashad (2015). Classifying Mobile Device Users Based on Behavior. KYMAA Annual Meeting, March.

Jonathon Byrd and Sherif Rashad (2015). Modeling and Prediction of User Behavior in Mobile Networks using Data Mining Techniques. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

First place winner in the undergraduate research competition, Computer and Information Sciences Section, 100th Annual Meeting of the Kentucky Academy of Science.

Outstanding Computer Science Student Award, Department of Mathematics, Computer Science, and Physics.

Google Internship, Summer 2015.

Post-Graduation Plans – Seniors Only:

N/A

Duffy, Lauren

Major:

Physics

Mentor:

Jennifer Birriel

Research/Project Title:

Analysis of Nighttime Sky Brightness Data from January to May 2013 in Morehead, KY, and the Effect of Cloud Cover and Lunar Phase on Overall Brightness

Project Abstract/Summary:

The overuse of artificial light at night is responsible for a pervasive astronomical and ecological problem known as light pollution. We monitored night-sky brightness (from sunset to sunrise) using the Unihedron “Sky Quality Meter” with lens and Ethernet connectivity. We perform a simple statistical analysis of the data from January to May 2013. We determine the daily minimum, maximum, and average values of night brightness. Each night was classified as either cloudy or clear and lunar phase recorded. Based on average nighttime brightness, the darkest nights in Morehead during this time were found to be 475% brighter than a pristine and unpolluted dark sky. We examine the effect of cloud cover during both new moon and full moon nights and find that cloud cover significantly amplifies the effect of light pollution.

Project Dissemination:

The student gave a talk locally at the Morehead State University Celebration of Student Scholarship in April and at the meeting of the KY section of the Mathematical Association of America at Morehead State University in March.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Lauren Duffy is planning on a career in engineering after graduation.

Farrell, Jessica N.

Major:

Mathematics

Mentor:

Jennifer Birriel

Research/Project Title:

Analyzing Great World Wide Star Count Night Sky Brightness Data

Project Abstract/Summery:

Light pollution, the obstruction of the nighttime sky due to wasteful lighting practices, is a serious problem facing many developing and developed countries. This research analyzes data submitted through two grassroots light pollution collection databases: the “Globe at Night (GaN)” and “Great World Wide Star Count (GWWSC).” Citizen scientists from around the world submit naked-eye limiting magnitudes to both of these data bases. We will describe each program briefly and perform a simple statistical analysis of the GWWSC data. We also examine global trends in time over the 2006-2012 data sets from GWWSC and compare those trends to a previous analysis of the GaN data. We find similar trends across the data sets and posit explanations for observed differences.

Project Dissemination:

The student gave a talk locally at the Morehead State University Celebration of Student Scholarship, Morehead, KY, April.

Awards and/or Honors:

Honorable mention at the 2015 Celebration of Student Scholarship at Morehead State University.

Post-Graduation Plans – Seniors Only:

Jessica is a student with a senior standing only because she has nearly 60 hours of credit from high school college courses. She will complete her math and physics degrees in May 2016.

Fugate, Joshua Z.

Major:

Mathematics

Faculty Mentor:

Wilson Gonzalez-Espada

Research Project Title:

Using Test Item Analysis Techniques to Evaluate a Science Methods Diagnostic Assessment

Project Abstract/Summary:

To identify whether students reached their educational goals, certain measurements must occur. Unlike the process of measuring physical objects, measuring abstract attributes, like learning, requires an indirect approach and using written tests. Item Response Theory (IRT) is a series of analyses aimed at improving the quality of written tests, including teacher-made ones. This study had two main goals: (1) to compare the retention of science content knowledge among methods course, and (2) to identify test items that do not meet IRT guidelines. The IRT analysis included item difficulty, item discrimination, normalized gains, and distractor plots. It was found that, although pre- and post-test scores were statistically similar, item data suggested that many students were forgetting information over the course of the semester. In addition, about 6-8 items were flagged for further examination. By revising or removing said items, the reliability and validity of the diagnostic test will likely improve. This research was supported by an Undergraduate Research Fellowship from the Department of Mathematics, Computer Science and Physics, College of Science and Technology.

Project Dissemination:

*Fugate, J. and Gonzalez-Espada, W. (2015). Item Response Theory: Implications for the Assessment of Pre-service Teachers' Scientific Knowledge. Oral presentation at the 10th Annual Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Fugate, J. and Gonzalez-Espada, W. (2015). Item Response Theory: Implications for the Assessment of Pre-service Teachers' Scientific Knowledge. Oral presentation at the annual meeting of the Kentucky Section of the Mathematical Association of America, Morehead State University, Morehead, KY, March.

*Knell J.L., *Fugate, J.Z., and Gonzalez-Espada, W.J. (2015). Applying IRT Guidelines to Improve Diagnostic Measurement of Physical Science Content Knowledge among Pre-service K-5 Majors: A Longitudinal Approach. Oral presentation at the annual meeting of the Kentucky Association of Physics Teachers (Next Generation Physics Teaching Regional Conference), Eastern Kentucky University, Richmond, KY, March.

*Wilhoite, A.P., *Knell, J.L., *Fugate, J.Z., and Gonzalez-Espada, W.J. (2014) Using Item Response Theory to Improve Diagnostic Assessments of Pre-Service Teachers. Paper presented at the 100th Annual Meeting of the Kentucky Academy of Science, Lexington Conference Center, Lexington, KY, November.

*Fugate, J.Z., *Wilhoite, A.P., *Knell, J.L., and Gonzalez-Espada, W.J. (2014). Do Your Tests Pass the Test? Workshop presented at the Annual Meeting of the Kentucky Science Teachers Association, Lexington Conference Center, Lexington, KY, November.

Awards and/or Honors:

Certificate of Merit, oral presentation, Celebration of Student Scholarship, Morehead State University.

Selected Poster Presentation, Posters-at-the-Capitol, Frankfort, KY.

Post-Graduation Plans:

N/A

Johnson, Iris

Major:

Math/Computer Science

Faculty Mentor:

Doug Chatham/Duane Skaggs/Robin Blankenship

Research Project Title:

The N + K Queens Problem is a problem in graph theory that requires the placing of queens and K pawns on an n x n chessboard in such a way that no two queens attack each other. Recently, we have been exploring an expansion of this problem by placing non-attacking queens and pawns on an n x n torus. We will be discussing patterns that we have found on certain boards and how we plan to implement them in a computer program designed to solve any board size.

Project Dissemination:

Johnson, Iris (2015). Some Queens and Their Pawns. Kentucky Section of the Mathematical Association of America (KYMAA), Morehead, KY, March.

Alloway, Bethany, Johnson, Iris, McGinnis, Michael, Blankenship, Robin, Chatham, Dug, and Skaggs, Duane. Mathematics and Chess: A Queen Approach. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

AAUW – Cave Run Scholarship

Certificate of Merit, Celebration of Student Scholarship, Morehead State University.

Post-Graduation Plans – Seniors Only:

N/A

Knell, Janie

Major:

Mathematics

Faculty Mentor:

Wilson Gonzalez-Espada

Research/Project Title:

Using IRT to analyze a physical science content test for pre-service teachers

Project Abstract/Summary:

Recently, results from the Program for International Student Assessment (PISA) suggest that, in the United States, school student performance in science and mathematics has moved from world-class to middle-of-the-pack. Teacher academic preparation and quality has been pointed out as one factor that must be improved for PISA scores to recover. At Morehead State University, the faculty revised several courses for teachers, including SCI 111 (an inquiry physical science course) to emphasize inquiry-based, hands-on instruction. After five years, we have enough data from the course's pre- and post- test diagnostic test to determine to what extent the revisions produced significant learning gains and to evaluate the diagnostic test using guidelines from Item Response Theory (IRT), such as test score distributions, item difficulty, item discrimination, and item distractor analysis. The two main findings were that (1) students demonstrated improved content knowledge in SCI 111, as measured by inferential statistics and normalized gains and (2) about seven test questions did not meet the minimum IRT quality requirements and were further examined for possible revision or deletion from the test. This research was supported by an Undergraduate Research Fellowship from the Department of Mathematics, Computer Science, and Physics, College of Science and Technology.

Project Dissemination:

*Knell, J. and Gonzalez-Espada, W. (2015). Using Item Response Theory to Analyze a Physical Science Content Assessment. Oral presentation at the 10th Annual Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Knell, J. and Gonzalez-Espada, W. (2015). Using Item Response Theory to Analyze a Physical Science Content Assessment. Oral presentation at the Annual Meeting of the Kentucky Section of the Mathematical Association of America, Morehead State University, Morehead, KY, March.

*Knell, J.L., *Fugate, J.Z., and Gonzalez-Espada, W. J. (2015). Applying IRT Guidelines to Improve Diagnostic Measurement of Physical Science Content Knowledge among Pre-service K-5 Majors: A Longitudinal Approach. Oral presentation at the Annual Meeting of the Kentucky Association of Physics Teachers (Next Generation Physics Teaching Regional Conference), Eastern Kentucky University, Richmond, KY, March.

*Wilhoite, A.P., *Knell, J.L., *Fugate, J.Z., and Gonzales-Espada, W.J. (2014). Using Item Response Theory to Improve Diagnostic Assessments of Pre-Service Teachers. Paper presented at the 100th Annual Meeting of the Kentucky Academy of Science, Lexington Conference Center, Lexington, KY, November.

*Fugate, J.Z., *Wilhoite, A.P., *Knell, J.L., and Gonzalez-Espada, W.J. (2014). Do Your Tests Pass the Test? Workshop presented at the Annual Meeting of the Kentucky Science Teachers Association, Lexington Conference Center, Lexington, KY, November.

Awards and/or Honors:

Selected poster presentation, Posters-at-the-Capitol, Frankfort, KY.

Post-Graduation Plans (Seniors only):

N/A

Knight, Kristen

Major:

Mathematics

Mentor:

Robin Blankenship/Doug Chatham/Duane Skaggs

Research/Project Title:

Covering Powers of Cycles by Equivalence Relations

Project Abstract/Summary:

The equivalence number of a finite simple graph is the minimum number of unions of disjoint cliques needed to cover all the edges of the graph. During this project, we considered some applications of the equivalence number in the context of determining the number of rounds necessary to complete certain multi-player tournaments, calculated the equivalence number of certain graphs, and established some bounds on the equivalence number of arbiterary graphs.

Project Dissemination:

Equivalence Numbers, Graph Theory, and League of Lengends. Oral presentation, Mathematical Association of America Kentucky Sectional Meeting, Morehead State University, Morehead, KY, March, 2015.

Equivalence Numbers, Graph Theory, and League of Legends. Oral presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2015.

R. Blankenship, R.D. Chatham, J.V. Harless, K. Knight, B. Salyer, R.D. Skaggs, and B.N. Wahle, Covering Powers of Cycles by Equivalence Relations. Publication in preparation.

Awards and/or Honors:
N/A
Post-Graduation Plans – Seniors Only:
N/A

McGinnis, Michael

Major:
Computer Science
Mentor:
Doug Chatham/Duane Skaggs/Robin Blankenship
Research/Project Title:
N+K Queens (Studies in Separation in Graphs
Project Abstract/Summary:
The N + K Queens Problem is a problem in graph theory that requires the placing of N queens and K pawns on an n x n chessboard in such a way that not two queens attack each other. Recently, we have been exploring an expansion of this problem by placing non-attacking queens and pawns on an n x n torus. We will be discussing patterns that we have found on certain boards and how we plan to implement them in a computer program designed to solve any board size.
Project Dissemination:
Alloway, Bethany, Johnson, Iris, McGinnis, Michael, Blankenship, Robin, Chatham Doug, and Skaggs, Duane (2015). Mathematics and Chess: A Queen Approach. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.
Awards and/or Honors:
Certificate of Merit, Celebration of Student Scholarship, Morehead State University.
Post-Graduation Plans – Seniors Only:
Career being a software engineer. After gaining experience in the field, move on to be a software engineer for a video games company.

Sargent, Sam

Major:
Physics
Mentor:
Capp Yess
Research/Project Title:
Reconstruct the Experimental Electromagnet in Lappin Hall
Project Abstract/Summary:
This project is attempting to renovate and test the experimental electromagnet and power supply in the basement of Lappin Hall. The first order of business was to clean the room in which the magnet is housed. This room has been used as a store room for various departmental "trash" for many years. The room also suffered greatly and had not been tended to since the last flood in the basement of Lappen Hall. It took weeks to sort the things in the room and clean it. After that was complete Sam and I started testing the magnet, cooling system and magnet power supply. We performed viability, resistance, impedence and inductance tests on the magnet. We also performed ruetine diagnostics on the power supply to test it's responsiveness. Over the course of our investigation we solicited the help of Scott Hannahs, Associate Director for Insturmentation, at the National High Magnetic Field Laboratory in Tallahassee, Florida. We were able to visit Dr. Hannahs and the NHMFL over spring break and discussed numerous use potions for our magnet. In the course of the project Sam was reaponsibe for keeping the laboratory jounal, performing the tests, analyzing the results and cleaning! Because Sam is a freashman with no physics courses on his transcript, he had to study independantly the science of the test performed on and the future utilities of the magnet. It is our hope that next year we will be able to test the functionality of the magnet and power supply. Dr. Hannahs has been advising us and is keeping an eye out for a replacement power supply in the event our proves to be unsatisfactory. The final goal of this project is to develop several working laboratory experiences that can be incorporated into the Experimental Physics: PHYS 340. **Project Dissemination:**

Alloway, Bethany, Johnson, Iris, McGinnis, Michael, Blankenship, Robin, Chatham Doug, and Skaggs, Duane (2015). Mathematics and Chess: A Queen Approach. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Sexton, Brittany

Major:

Physics

Mentor:

Kent Price

Research/Project Title:

Using Television's Big Bang Theory in the Teaching of Introductory Physics

Project Abstract/Summary:

Scenes from the hit television show "The Big Bang Theory" were analyzed for physics content that may be used in the teaching of introductory physics. A catalog of such scenes was compiled and clips of the most useful scenes were recorded as mp4s. One such scene was analyzed numerically; Season one, Episode 2, The Big Bran Hypothesis, when Sheldon and Leonard are moving Penny's couch up the stairs. This scene is analyzed, including the assumptions made by Sheldon and Leonard that there was no friction, and compared to the more realistic situation in which friction would be present. This scene can be shown in the classroom when learning to calculate forces; first without friction, as Sheldon and Leonard assumed, and then with friction afterward. The end goal is to create an enjoyable and relatable learning tool for students when they're learning beginning physics. This project is supported by a MSU Undergraduate Research Fellowship.

Project Dissemination:

Utilizing the television show, "The Big Bang Theory," as an educational tool in the teaching of beginning level physics courses. Brittany Sexton and Kent Price, Poster presentation at Morehead State University Celebration of Student Scholarship, May 2015.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Wilhoite, Andrea

Major:

Mathematics

Mentor:

Wilson Gonzalez-Espada

Research/Project Title:

Inquiry Physical Science: Curricular Comparisons and IRT Analysis

Project Abstract/ Summary:

Current science education reform efforts emphasize teaching K-12 science using hands-on, inquiry activities. For maximum learning and probability of implementation, these instructional strategies must be modeled in college science courses for pre-service teachers. In the case of Morehead State University's inquiry physical science course, SCI 111, the instructor used two different curricula: "Physics for Everyday Thinking" and "Interactions in Physical Science." Although the same diagnostic pre- and post-test was used with both curricula, it is only now that we have enough student responses to validate the assessment using guidelines from Item Response Theory (IRT). The purposes of this research study were twofold. First, I compared students' pre- and post-test scores to determine what curricula produced the most learning, as measured by t-tests and normalized gains. Second, I calculated IRT parameters and performed distractor analyses to identify individual items that did not meet psychometric guidelines and that needed to be revised or removed from the diagnostic test. It was found that students performed slightly better with "Physics for Everyday Thinking." Between 5-7 items were flagged for further examination. This research was supported by an Undergraduate Research Fellowship from the Department of Mathematics, Computer Science, and Physics, College of Science and Technology.

Project Dissemination:

*Wilhoite, A. and Gonzalez-Espada, W. (2015). Inquiry Physical Science: Curricular Comparisons and IRT Analysis. Oral presentation at the 10th Annual Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

*Wilhoite, A. and Gonzalez-Espada, W. (2015). Inquiry Physical Science: Curricular Comparisons and IRT Analysis. Oral presentation at the annual meeting of the Kentucky Section of the Mathematical Association of America, Morehead State University, Morehead, KY, March.

*Wilhoite, A.P. and Gonzalez-Espada, W. (2015). Inquiry Physical Science: Curricular Comparisons and IRT Analysis. Oral presentation at the annual meeting of the Kentucky Association of Physics Teachers (Next Generation Physics Teaching Regional Conference), Eastern Kentucky University, Richmond, KY, March.

*Wilhoite, A.P., *Knell, J.L., *Fugate, J.Z., and Gonalez-Espada, W.J. (2014). Using Item Response Theory to Improve Diagnostic Assessments of Pre-service Teachers. Paper presented at the 100th Annual Meeting of the Kentucky Academy of Science, Lexington Conference Center, Lexington, KY, November.

*Fugate, J.Z., *Wilhoite, A.P., *Knell, J.L. and Gonzalez-Espada, W.J. (2014). Do Your Tests Pass the Test? Workshop presented at the Annual Meeting of the Kentucky Science Teachers Association, Lexington Conference Center, Lexington, KY, November.

Awards and/or Honors:

Kentucky Academy of Science, Third Place, Science Education Oral Presentation Award.

Post-Graduation Plans – Seniors Only:

Graduate Program in Opthalmology.

DEPARTMENT OF PSYCHOLOGY

Abbott, Zachary

Major:

Neuroscience

Mentor:

Ilsun White

Research/Project Title:

Glutamate-Cholingergic Interaction in Memory

Project Abstract/Summary:

Disruption of muscarinic receptors, a subtype of cholinergic receptors, impairs learning and memory. Glutamate dysfunction, particularly NMDA receptors, is closely linked to age-related deficits and Alzheimer's disorder. We examined the cholinergic-glutamate interaction in learning and memory, using an animal model. Male Wistar rats were trained in the fixed ratio 5 (FR5), which required five lever-presses for a food pellet, until they reached the behavioral criteria. Rats received scopolamine (muscarinic receptor antagonist), MK801 (NMDA receptor antagonist), scopolamine+MK801, or saline. We measured the latency of the first lever-press, runtime to complete five lever-presses, and pellet retrieval. Compared to saline, scopolamine- or MK801-alone delayed the first response and runtime. Neither drug affected food retrieval. Compared to scopolamine, a combined scopolamine+MK801 produced faster first response, longer runtime, and a severe deficit in food-retrieval. Our data suggest that activation of muscarinic and NMDA receptor is necessary for successful initiation and completion of response requirement, but may mediate different aspects of learning and memory. Given that MK801 and scopolamine primarily target the prefrontal cortex and the hippocampus, the site of muscarinic-NMDA interaction is likely within these brain regions.

Project Dissemination:

Below is some of outcomes relevant to Zach's involvement in RESEARCH, 2014-present.

Abbott Z, White IM (2015). Cholinergic-Glutamate Interaction in Learning and Memory. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Abbott Z, Gibson K, Stark J, White IM. Does Stress Worsen Alzheimer's Symptoms? Posters-at-the-Capitol [meeting was canceled in Feb 2015, due to severe weather condition].

White IM, Abbott Z, Duty JB, White W (2014). Responsiveness to Restraint Stress and Scopolamine in Simple Learning and Memory. Society for Neuroscience, Washington, DC. November.

Abbott Z, Holbrook J, Roe A, Nolan CN, White IM (2015). Scopolamine Effects on Stress-Induced Behavior. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Abbott Z, Nolan CN, Huff JL, White IM (2015). Scopolamine Negatively Impacts Stress-Induced Memory Deficits. Kentucky Chapter Society for Neuroscience, University of Louisville, Louisville, KY, April.

Roe A, Holbrook J, Abbott Z, White IM. (2014). Physiological Stress on Acquisition of Simple Learning. Celebration of Student Scholarship, Morehead State University, Morehead, KY April.

Conference Proceedings, Published Abstracts

White IM, Abbott Z, Duty JB, White W (2014). Responsiveness to Restraint Stress and Scopolamine in Simple Learning and Memory. Society for Neuroscience Abstract, 40:265.16.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Zach's post-graduate goal is to receive a PhD in Neuroscience. Currently, Zach is majoring in Neuroscience, and he will be a junior this fall 2015. He plans to apply to Graduate Schools in his senior year.

Clark, Amanda

Major:

Psychology

Mentor:

David Butz

Research/Project Title:

Isolating the Source of Diversity-Threat Effects

Project Abstract/Summary:

Despite increasing opportunities for interracial contact, many individuals find the prospect of interracial contact anxiety-provoking. In the current experiment we examined the hypothesis that awareness of increasing diversity evokes threat responses and precipitates interracial anxiety and avoidance. White/Caucasian participants (N = 181) were randomly assigned to either consider the topic of increasing racial diversity, general diversity, or physical activity by writing a brief analytical essay. Participants then reported their interracial anxiety and avoidance and described an imagined interracial interaction. Results indicated that the concept of general diversity evoked similar levels of interracial anxiety and avoidance as racial diversity and greater anxiety and avoidance than physical activity. Imagined interactions were coded on a number of dimensions related to comfort in interracial interaction, however descriptions of interactions did not reliably differ across experimental conditions. Findings will be discussed in terms of their implications for understanding sources of interracial anxiety and avoidance.

Project Dissemination:

Clark, Amanda R., Hinds, Caleb, Craft, Melissa, Wattenberger, Wesley, Deem, Kristina M., Wagoner, Martina, Thomas, Richard, Pamela M. Lacy, and Butz, David (2015). Diversity Threat: Reminders of Increasing Diversity Encourage Interracial Anxiety and Avoidance, poster presentation, Kentucky Psychological Association Annual Meeting, Midway, KY, March (Poster also presented at the Celebration of Student Scholarship, Morehead, KY, April, 2015).

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Fletcher, Allison

Major:

Biomed/Premed

Mentor:

Ilsun White

Research/Project Title:

The Effects of Anticonvulsants on Learning and Memory in Rats

Project Abstract/Summary:

Studies have shown that anticonvulsant drugs that block N-methyl-D-aspartate (NMDA) receptors may disrupt postnatal neurogenesis, memory, and long-term cognitive function. Chronic administrations (daily, >280 days) of NMDA antagonists disrupt acquisition of complex learning and motivation in rats. The present study examined the effects of subchronic treatment of NMDA antagonist on acquisition of simple learning. Male Wistarrats were shaped to press the lever for a food pellet. Rats received subchronic injections (once/day, 5 days) of MK801 (0.2mg/kg), PCP (9mg/kg), or saline, prior to their training in a fixed-ratio 5 (FR5), which required rats to make five lever-presses for a food pellet. MK801-treated rats were tested after each injection, whereas PCP group during withdrawal days 3-7. Compared to saline, MK801 markedly delayed the first lever press and runtime, with a slight improvement as

learning progressed. PCP delayed the response latency, with no effects on runtime, indicating a sustained state of motivation. Our findings suggest that NMDA receptor activation is critical in simple learning and that chronic use of NMDA antagonists as anticonvulsants would produce short- and long-term learning deficits. Given that these drugs target the prefrontal corex and the hippocampus, future research should further examine implications of side-effects associated with a long-term use of NMDA antagonists as anticonvulsants.

Project Dissemination:

Allison Fletcher and Ilsun M. White (2015). Subchronic Treatment of NMDA Antagonists on Acquisition of Learning. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Currently, Allison is a premed, majoring in Biomedical Sciences. Allison's post-graduate goal is to become a MD, specializing in pediatrics or in neurologic disorders or trauma.

Hamm, Ashley

Major:

Psychology

Mentor:

Shari Kidwell

Research/Project Title:

Coping Patterns and Adjustment among Early Adolescents: Associations with Parenting and Attachment

Project Abstract/Summary:

The major aim of Dr. Kidwell's larger research agenda is to understand the mechanisms through which high-quality (i.e., secure) parent-child relationships and sensitive caregiving promote children's social, emotional, and academic achievement. A comprehensive longitudinal study, funded through NSF's KY EPSCoR and MSU's RCPC, has been the primary vehicle through which such questions are beginning to be answered. The study began when the children were preschoolers and a more recent RCPC grant has enabled us to assess how the families were doing when the children were 11-14 years old. Our past research has suggested that relatively few of our participating parents are likely securely attached themselves and that these insecure attachments and the accompanying difficulties have often been "passed down" from parent to child.

A core concept in this intergenerational pattern is thought to be the way parents socialize their children's expression of emotion, particularly negative emotion, which consequently affects children's emotion and coping skills. Gottman and Katz (1997) and Saarni (1999) have described parental "emotion coaching" as related children's positive adjustment. When young children are experiencing an emotion, ideally parents teach them to label and discuss it, to come up with coping strategies, and to evaluate whether these are likely to be effective. Thus, emotional expression, understanding, and coping are thought to become internalized through such interactions over time. By the adolescent years, these patterns of dealing with emotion may be seen as intrinsic to the child, even if their roots are in dyadic patterns of relationships.

Our literature review revealed that research examining both parental emotion coaching and children's coping is incredibly sparse. The child coping literature does suggest that children's efforts to control their emotions, particularly through active attempts to think differently, are associated with better adjustment. Avoidance and disengagement, in contrast, is correlated with increased anxiety and depression (Compas, 2001). However, most studies used questionnaire methods, which overly simplify coping processes, and few studies have been informed by developmental theory (Compas, 2001). Very few have a longitudinal design with comprehensive measurement of child adjustment and parenting. Thus, our study has definite promise to impact the field.

On our project, a child version of Gottman & Katz's (1997) Meta-Emotions Interview is one of the tasks we think will reveal important individual differences in children's emotions and coping. This interview asks children to discuss both their own emotions and those of their parents, in terms of which are commonly experienced, which pose the most difficulty for them, and how both they and their parents respond to them. Ashley adapted an existing coding scheme for this interview, particularly classifying children's coping responses. She also learned about meta-emotion theory (i.e. coaching), which was used to code a parental emotions interview on the project. Our results showed that parents who described coaching their children about anger were significantly less likely to have children who used avoidant strategies when they were angry.

In sum, our view is that parent and children's thinking about and coping with negative emotion is a key construct that explains why insecure attachments can have such a large effect on socioemotional functioning, even across generations. Many of our parents have experienced not only caregiving insensitivity, but outright maltreatment. We have other findings that suggest parent's trauma is associated with their emotion coaching with their child. Ashley's data now shows this may have an important impact on their children's coping. These are very exciting findings and we look forward to building upon them in the coming year through continuing her URF.

Project Dissemination:

Celebration of Student Scholarship.

Awards and/or Honors:

Award of Exceptional Merit at Celebration of Student Scholarship.

Post-Graduation Plans – Seniors Only:

N/A

Kootz, Macy T.

Major:

Psychology

Mentor:

Laurie Couch

Research/Project Title:

Macy worked primarily on a project about romantic breakup experiences in college students. Thus far she has explored how personality factors, such as one's attachment style, contributes to the breakup experience. She is expected to continue her work on the topic in 2015-16

Project Abstract/Summary:

Romantic breakups have been linked extensively to distress (e.g., Connelly & McIsaac, 2009), especially in women (e.g., Simon & Barrett, 2010). Sbarra and Emery (2005) found that most people resolve their negative emotions within a few weeks, but if not then a form of complicated grief known as breakup distress emerges. Feelings of psychological "unfinished business" (Singh, 1991), relationship preoccupation (Davis, 2003), and disorganized behavior (Field, et al, 2011) also may ensue. It is not clear why some are less able to resolve their feelings after breakup, but Sbarra (2006) observed that securely attached individuals more readily accept the finality of dissolution than others, which may aid resolution. Copious research also suggests those with secure attachment handle other adversities better than those with insecure attachments (e.g., Ben-Ari & Hirshbert, 2009; Shaver & Mikulincer, 2013; Craparo, et al., 2014). Given these patterns, it was hypothesized that independent of the time since breakup, those with secure attachment would experience fewer signs of unresolved breakups than others. In exchange for nominal course credit, 198 college women (mean age = 19.81 years) completed an online survey about their worst breakup. Each participant indicated how much time had passed since the breakup (mean = 26.39 months), and completed four measures of problematic resolution: the Breakup Distress Scale (Field, et al., 2009), the Relationship Preoccupation Scale (Davis, 2003), the Negative Adjustment Index (Saffrey, 2001), and the Unfinished Business Resolution Scale (Singh, 1991). In addition, they completed the Experiences in Close Relationships Scale-Revised (Fraley, Waller, & Brennan, 2000), a measure of attachment styles. To test the hypothesis, a MANCOVA was conducted using attachment style as the independent variable, the four measures of postbreakup resolution as the dependent variables, and the time since the breakup as the covariate. As expected, results indicated that time since breakup was related to post-breakup resolution, multivariate $F(4,189) = 6.58$, $p < .001$, with greater resolution across time for all dependent variables. Additionally, attachment styles were linked to post-breakup resolution, multivariate $F(12,500) = 2.36$, $p <. 01$. As can be seen in Figures 1-3, those with secure attachment reported less breakup distress, negative adjustment, and unfinished business than those with preoccupied or fearful attachment styles. Attachment style did not predict relationship preoccupation.

Project Dissemination:

Kootz, M. T., & Couch, L. L. (2015). On the Mend: Attachment's Role in Getting over Romantic Breakups. Midwestern Psychological Association, Chicago, IL, April. (Poster also presented at the April. Psychological Association, Midway, KY, and the 2015 MSU Celebration of Student Scholarship, Morehead, KY, April).

Koeninger, A. L., *Kootz, M. T., & Couch, L. L. (2014). Comparing Personal Qualities of One-Time Cheaters and Serial Cheaters. Kentucky Academy of Sciences, Lexington, KY, November.

Additionally, Macy has a solid draft of a manuscript written based on the attachment paper (above). It is expected that she will submit the manuscript for publication this summer.

Awards and/or Honors:

Macy was awarded 2nd place in the Ernest Meyer Undergraduate Research Competition by the Kentucky Psychological Association.

Post-Graduation Plans – Seniors Only:

N/A

Preston, Andrew

Major:

Psychology

Mentor:

David Butz

Research/Project Title:

Empathy Invokes Negative Responses to Female Sexual Minorities

Project Abstract/Summary:

The role of empathy as a mechanism of prejudice has been suggested in a wide variety of research. Some work suggests that prejudice may be a direct result of a lack of empathy for minority group members. The current research builds upon this previous body of work on empathy and intergroup relations by examining the role of empathy in shaping attitudes and decisions affecting sexual minorities. In line with previous work on the positive implications of empathy, it was hypothesized that empathy would promote positive intergroup responses such that highly empathic individuals would exhibit more positive responses to sexual minority group members than their lower empathy counterparts. Heterosexual participants were recruited from a Psychology department subject pool and engaged in a two-part survey to gather demographic information and assess level of empathy using the Basic Empathy Scale. The other section of the survey was an allegedly separate study in which ostensible student composers were recruited to test a program in which they may be funded for future musical endeavors based on recommendations from similar students. Participants were presented with instrumental music written by these student composers and asked a series of questions about the songs that were designed to assess emotional perception, perceptions of talent, and recommendations for funding. The present experiment systematically varied the gender and sexual orientation of the target composer. Average BES scores were categorized via a median split as “high empathy” or “low empathy”, and a three-way analysis of variance was conducted involving the categorized empathy variable, target sexual orientation, and target gender. Contrary to hypotheses, in our preliminary analyses, participants who were high in empathy did not exhibit more positive responses toward sexual minority composers than did their low empathy counterparts. However, a significant interaction of target orientation, target gender, and empathy emerged. Unexpectedly, individuals high in empathy reported significantly more negative responses (i.e., lower perceived talent and less recommended funding) for gay females compared to heterosexual females. This effect was not evident in the male composer condition, nor among those low in empathy. Potential explanations for these unexpected findings and the implications of this work for understanding the nuanced role of empathy in responses to sexual minorities will be discussed.

Project Dissemination:

Preston, A.G. & Butz, D.A. (2015). Empathy Invokes Negative Responses to Female Sexual Minoritie, paper presentation, Annual Meeting of the Southeastern Psychological Association, Hilton Head, SC, March. (Poster also presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April).

Preston, A.G. & Butz, D.A. (2014). A Picture of Prejudice: In-Group Bias in the Evaluation of Non-Christian Artists, poster presentation, The Kentucky Academy of Science Centennial Annual Meeting, Lexington, KY, November.

Awards and/or Honors:

2015 Outstanding Senior Psychology Student.

2015 Outstanding Psychology Undergraduate Student.

Post-Graduation Plans – Seniors Only:

Accepted to Appalachian State University’s M.A. Experimental Psychology program, Eastern Kentucky University’s M.S. General Psychology program, University of Louisiana at Lafayette’s M.A. Experimental Psychology program, and Morehead State University’s M.A. Experimental Psychology program. Preston has decided to extend his undergraduate career an extra year to complete a second degree in Traditional Music studies to better prepare for an academic career more in line with ethnomusicology.

Secord, Laura

Major:

Psychology

Mentor:

Laurie Couch

Research/Project Title:

Predicting Success in Long-Distance vs Face-to-Face Relationships/Assessment of Breakup Experiences

Project Abstract/Summary:

Laura was a first author on a conference presentation for the Kentucky Academy of Sciences based on the "Predicting success in long-distance vs. face-to-face relationships" study and she submitted a conference presentation to the Southeastern Psychological Association (which has been accepted) for Spring 2015 based on the "Assessment of breakup submissions, and delivered the first presentation.

Project Dissemination:

As noted above, Laura gave/will give two presentations during 2014-15. Here are the references for those presentations:

Secord, L.J., & Couch, L.L. (2014). Going the Distance: The Role of Emotional Intelligence in Long-distance vs. Face-to-face Relationships. Kentucky Academy of Science, Lexington, KY, November.

Secord, L.J., & Couch, L.L. (2015). Lean on Me: Help Seeking Patterns and Post-breakup Growth. Southeastern Psychological Association, Hilton Head, SC, March.

Awards and/or Honors:

Laura's paper at the KAS 2014 conference won 3rd place in the Undergraduate Poster Competition.

Post-Graduation Plans – Seniors Only:

Laura has applied to several master's program in clinical psychology. She expects to learn of any acceptances by April 2015.

Smith, Wyatt

Major:

Psychology

Mentor:

Tim Thornberry

Research/Project Title:

Assessing Reactivity and Parent-Child Interactions during Behavior Observations

Project Abstract/Summary:

This project will collect local community data to determine the reliability and validity of a novel parent report measure of parent and child reactivity (the Thornberry Observation Reactivity Questionnaire, TORQ, or Reactivity Questionnaire). It will also assess the measure's ability to document reactivity during standardized behavior observation of parent-child interactions (the Dyadic Parent-Child Interaction Coding System, DPICS, or Coding System). This project was funded by the Morehead State University Research and Creative Productions Committee Research Grant for 2015-2016. Given that this project began in February, 2015, results are not available at this time. However, Mr. Smith has been involved in other lab projects resulting in multiple conference presentations this semester.

Project Dissemination:

As mentioned above, Mr. Smith has not been involved in dissemination of the current project due to ongoing data collection efforts. However, he has presented research related to other lab projects (see below).

Smith, W., Preston, A., & Thornberry, T. (2015). Companion Animals as Social Catalysts: A Behavioral Health Perspective. Poster presented at the 61st Annual Meeting of the Southeaster Psychological Association, Hilton Head, SC, March.

Smith, W., Preston, A., & Thornberry, T. (2015). Companion Animals as Social Catalysts: A Behavioral Heatlh Perspective. Poster presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

N/A

Stark, James

Major:

Neuroscience

Mentor:

Ilsun White

Research/Project Title:

Initial project: Differential Involvement of Nicotinic Receptors and Muscarinic Receptors in Memory: Glutamate-Cholinergic Interaction

Final project: Glutamate-Dopamine Interaction in Learning

Project Abstract/Summary:

Dopamine has been implicated in attention. Activation of glutamate, particularly NMDA, receptors is known to be critical in learning and memory. The present study examined glutamate-dopamine interaction in simple learning. Male Wistar rats were trained on simple task FR5, which required the animal to make five lever-presses to receive a food pellet. Once the animal reaches a behavioral criteria (60 rewards on FR5 for 2 consecutive sessions), rats received SCH23390, MK801, or saline prior to FR5. SCH23390 decrease attention by selectively blocking dopamine D1 receptors, and MK801 decreases learning and memory by blocking NMDA receptors. All injections were done in a counter-balanced manner. Behavioral measures included the response latencies for the first lever-press, runtime (time to complete 5 lever-presses), and food retrieval. SCH23390 increased the first response latency and runtime, compared to saline controls. A combination of MK801 and SCH23390 decreased the response latency and runtime, whereas MK801 treatment alone did not affect response latency nor runtime. Given that MK801 increases dopamine indirectly, MK801's ability to reverse SCH-induced deficits is likely due to enhanced dopamine transmission. Our data provide a strong evidence for NMDA-dopamine interaction in simple learning.

Project Dissemination:

James Stark, Ilsun M. White (2015). Simple Learning Requires Activation of D1 Receptors: NMDA-D1 Receptor Interaction. Celebration of Student Scholarship, Morehead State University, Morehead, KY. April.

Jenna L. Huff, James B. Stark, Autumn M. Rice, Ilsun M. White (2015). Do We Discriminate Emotion Better Under Stress? Celebration of Student Scholarship, Morehead State University, Morehead, KY. April.

Kinetta N. Crisp, James B. Stark, Jenna L. Huff, Allison B. Fletcher, Sarah R. Caudill, Zachary S. Abbott, Autumn M. Rice, Tori Dennie, Sarah Baker, Josie Singleton, Richard Ward, Chris Hobert, Ilsun M. White. (2015). Brain Awareness Program: Brain Drawing Contest. Celebration of Student Scholarship, Morehead State University, Morehead, KY. April.

Abbott Z, Gibson K, Stark J, White IM. Does Stress Worsen Alzheimer's Symptoms? Posters-at-the-Capitol [meeting was canceled in Feb 2015, due to severe weather condition].

Awards and/or Honors:

N/A

Post-Graduation Plans – Seniors Only:

Currently, James is majoring in Neuroscience. James' short-term post-graduate goal is to enter a Master's Program.

CAMDEN-CARROL LIBRARY

Trenary, Dakoda

Major:

Secondary English Education

Mentor:

Karla Aleman

Research/Project Title:

Finding Character in Our Collections: Investigating Spanish-Language Library Materials

Project Abstract/Summary:

Central to a library's mission is the development and management of its collections, but learning a collection's strengths and weaknesses is often a difficult and time consuming task. In order to better connect patrons to the Library's resources, the Morehead State University Library began an in-depth, item-level collection assessment of the Library's literature and language collections. Employing the talents of five undergraduates to collect data and spot trends, the Library previously assessed the collections. Employing the talents of five undergraduates to collect data and spot trends, the Library previously assessed the English-language and French-language materials. One MSU Honor student's new efforts this past year have focused on assessing Spanish-language material. This poster presentation will explore comparisons between English-language and Spanish-language material usage and will discuss new discoveries about the quality and age of the Library's Spanish-language material.

Project Dissemination:

Trenary, D. (2015). Finding Character in Our Collections: Investigating Spanish-Language Library Materials. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Aleman, K.J., Trenary, D., & Kozar, C. (2014). Finding Character in Our Collections: Partnering with Students to Learn More about What We Own. 2014 Kentucky Library Association & Kentucky Chapter of the Special Library Association Joint Spring Conference, Carrollton, KY, April.

Trenary, D., & Kozar, C. (2014). Finding Character in our Collections: Investigating Library Material Usage and Subject Coverage. Celebration of Student Scholarship, Morehead State University, Morehead, KY April.

Awards and/or Honors:

Award of Exceptional Merit, Celebration of Student Scholarship, Morehead State University, 2014.

Post-Graduation Plans – Seniors Only:

Although Dakoda is a senior this year, she will be continuing her undergraduate education in the fall.

Student Index