

# ANNUAL REPORT OF UNDERGRADUATE RESEARCH FELLOWS

August, 2013 to May, 2014

## 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

#### **Brickey, Shelby**

**Major:**

Accounting

**Faculty Mentor:**

Johnathan Nelson

**Research/Project Title:**

Confronting Misbehavior: The Role of Implicit Theories in Enacting Ethics-Centered Communication

**Project Abstract/Summary:**

Ethical blunders have highlighted the need to more effectively manage ethical behavior in organizations. Ethics-centered communication has been identified as a tool for fostering ethical behavior. However, there is little understanding as to who chooses to enact ethics-centered communication and why. This research seeks to address this gap in the literature by investigating the role of implicit person theories in the enactment of ethics-centered communication.

Implicit person theories refer to implicit beliefs individuals hold regarding achievement and intelligence, reflecting the degree to which they believe people can change. There are two types of implicit theories. Entity (fixed) theorists believe people can't change. Incremental (growth) theorists believe people can change. For example, someone with an entity perspective views intelligence as fixed; intelligence for these individuals is reflected by low effort successes. An incremental theorist perceives intelligence as more alterable; incrementalists focus on challenges to develop their intelligence. To build upon the knowledge of who enacts ethics-centered communication and why this preliminary research examines how a person's willingness to speak up when confronted with unethical behavior is influenced by their impact beliefs about the degree to which people can change.

**Project Dissemination:**

**Poster Presentation:**

Brickey, S., Polk, N. and Nelson, J.K. (2014). The Influence of Implicit Theories of Personality on Behavior in Organizational Settings, Posters-at-the-Capitol, Frankfort, KY, February.

**Oral Presentations:**

Brickey, S. and Nelson, J.K. (2014). Developing Others by Promoting Growth Mindsets. Workshop, Kentucky Collegiate Leadership Conference, Morehead, KY, February.

Brickey, S. and Nelson, J.K. (2014). Confronting Misbehavior: The Role of Implicit Theories in Enacting Ethics-Centered Communication, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Pursuing a full-time position to gain industry experience in preparation for graduate studies in the next 2-3 years.

**Callihan, Shannon**

**Major:**

Sport Management

**Faculty Mentor:**

Steve Chen

**Research/Project Title:**

Fundraising and Gender Equity Considerations in Interscholastic Programs

**Project Abstract/Summary:**

Interscholastic sport programs throughout the country have been severely impacted by tough economic recession in the last few years. Without adequate funding and proper funding distribution based on gender equality, the female athletic participation will likely be decreased furthermore. To ensure a successful operation of interscholastic athletic programs, this study examined the perceptions of athletic directors and coaches on two key aspects: (a) identifying effective methods for generating athletic funds, and (b) examining the administrators' thoughts on funding female sports and maintaining Title IX compliance. Through an online survey, this study helped identify successful fundraising techniques used by existing athletic programs. It also examined how schools establish a successful, fair, and operative budget for interscholastic sports programs under the Title IX compliance. The results also presented interesting contradictions regarding philosophy on revenue generation and distribution among female and male athletics.

**Project Dissemination:**

**Presentations:**

Callihan, S., Kiser, N., and Chen, S. (2014). Fundraising and Gender Equity Considerations in Interscholastic Programs, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Callihan, S.L., Kizer, N., Chen, S. and Smith, C.D. (2014). Fundraising and Gender Equity Considerations in Interscholastic Athletic Programs, 10<sup>th</sup> Annual Sport Psychology Forum, Bowling Green, KY, February.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Internship in Spring 2015

**Coffey, Waylan**

**Major:**

Management

**Faculty Mentor:**

Janet Ratliff

**Research/Project Title:**

A Comparison of Entrepreneurial Knowledge Between Middle School Students and College Students

**Project Abstract/Summary:**

The purpose of this study was to examine pre/post tests of entrepreneurial and business plan content knowledge. Middle school curriculum was aligned with state core standards in math and language arts. The researchers wanted to determine changes in knowledge as a result of exposure to an entrepreneurial curriculum (grade appropriate). The test was administered to middle school students in an eastern Kentucky county and freshmen college students at Morehead State University. Data collection occurred in Fall 2013. The analysis included: defining an entrepreneur, understanding the economy, assessing differences between revenues and profits, recognizing factors about entrepreneurship, identification of productive resources and efficiencies in productivity, among other business content. Differences found between the two groups are reported for the middle school students and the college students as well as differences between gender. Research was supported by an MSU Undergraduate Research Fellowship.

**Project Dissemination:****Poster Presentation:**

Coffey, Waylan and Ratliff, Janet R. (2014). A Comparison of Entrepreneurial Knowledge Between Middle School Students and College Students, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**George, Sarah****Major:**

Accounting

**Faculty Mentor:**

Bev McCormick/Janet Ratliff

**Research/Project Title:**

A Comparison of Entrepreneurial Perspectives Between Middle School and College Students

**Project Abstract/Summary:**

The student was given data to input into the computer and run statistical tests to determine the significance of the findings. This was a massive undertaking and required a great deal of refinement and culling of the data. Student went from an idea of an area of interest to hard data from which she could report the findings.

**Project Dissemination:****Poster Presentation:**

Student presented at the Posters-at-the-Capitol event in February and the Celebration of Student Scholarship event in April, 2014.

**Awards and/or Honors:**

Certificate of Merit, Celebration of Student Scholarship.

**Post-Graduation Plans (Seniors only):**

N/A

**Hylton, Brandon****Major:**

Finance/Philosophy

**Faculty Mentor:**

Donna Kizzier

**Research/Project Title:**

Delta Pi Epsilon Business Casebook, 2<sup>nd</sup> Edition

**Project Abstract/Summary:**

The major focus this year was to finalize author edits for the Business Casebook, 2<sup>nd</sup> edition in preparation for blind review by the casebook editorial board, to be conducted June, 2014, with the book scheduled for publication Fall, 2014. Delta Pi Epsilon is a national graduate research honorary in business. Roughly 70 chapters of newly submitted cases were edited by Dr. Kizzier, with Brandon's research assistance, in addition, all cases from the first edition were reviewed for viability/need for update to make the cut for the second edition. Thirty-six authors representing institutions from across the US and internationally submitted cases to be considered for publication. MSU student and professor authors were encouraged to submit, ideally collaboratively; we achieved nineteen author submissions from MSU faculty/students, most interdisciplinary and representing all disciplinary MSU Colleges except the College of Education (we did incorporate a competency reviewed for education, however). Brandon was a co-author on two cases written to date and posted for blind review. He has an additional co-authored submissions in process (May/June). Brandon also assisted significantly with cloud site management (Folio 180, in collaboration with another MSU family member who volunteered the site for us for publication), to manage the editing and review process. The use for Folio 180 for this purpose will be featured in a newsletter from the Folio organization. We achieved posting of all case chapters for final author review in April. The blind review is running concurrently this summer, as authors approve the final edits. Hylton and Kizzier work on this project year round. Brandon is learning how to manage a major scholarly publication that uses the blind review process.

**Project Dissemination:**

In process; publication, which is a best seller for this national research honorary, anticipated Fall 2014.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Kuessner, Kelsey****Major:**

Marketing

**Faculty Mentor:**

Janet Ratliff

**Research/Project Title:**

A Comparison of Entrepreneurial Perspectives Between Middle School and College Students

**Project Abstract/Summary:**

Student worked to compile a great deal of data that had been assembled between First Year Seminar classes and the Pikeville Middle School Entrepreneurship Program. Students input data into the computer and ran statistical tests to determine the significance of the findings. This required a great deal of refinement and culling of the data. She went from having an interest in the topic to knowing quite a bit about the topic and now has an understanding of the differences between male and female entrepreneurs.

**Project Dissemination:****Presentations:**

The student participated in Posters-at-the-Capitol in Frankfort, KY, in February, and at the Celebration of Student Scholarship, in Morehead, KY, in April.

**Awards and/or Honors:**

Certificate of Merit, Celebration of Student Scholarship.

**Post-Graduation Plans (Seniors only):**

N/A

**Mason, Nicholas****Major:**

Sport Management

**Faculty Mentor:**

Steve Chen

**Research/Project Title:**

Dynamic Pricing: Is It a Smart Way to Generate Income for Small Market Collegiate Athletics? and A Projection of Economic Impact and Benefits of a Proposed Tail System

**Project Abstract/Summary:**

It is predicted that future sport organizations will pervasively utilize dynamic pricing strategy, a method involving price changes based on different demands and occasions, to generate extra ticket revenues soon. This study examined whether dynamic pricing strategy can be well accepted and implemented at regional, small market collegiate athletic programs. Twenty college/university athletic directors and marketing managers from the Ohio Valley region and the Mid-west responded to a phone interview and a 10-item survey expressing their perceptions toward the use of dynamic pricing. The study addressed key issues such as the overall impression about the benefits and shortcomings of dynamic pricing and past experience (or success) toward implementing the strategy. Both qualitative and quantitative data were gathered from late July to early November, 2012. In general, the results showed that the majority of respondents were fairly receptive to dynamic pricing; however, the practice of changing the ticket prices frequently was cumbersome. They also did not overwhelmingly believe this strategy would bring excessive financial benefits. Although the marketing literature optimistically projects the popularity of dynamic pricing, in order to make the generalization concerning the applicability of dynamic pricing to all non-major conference athletic programs, future studies should be conducted by including a greater sample population and different geographic regions.

The purpose of this feasibility study was to justify the rationales for constructing the Dewey Lake Trail System (DLTS) with public funding. The investigators surveyed 119 residents from the surrounding area of Floyd County, Kentucky at the 2011 Jenny Wiley Festival. Results indicated the majority (92%) of the respondents favored the idea of building the trail system. Results also suggested the trail project might attract residents to frequently engage in fishing, walking/hiking, camping, and horseback riding, attending festivals, July 4<sup>th</sup> fireworks, and other trail and outdoor competitions. The DLTS is projected to generate an annual economic impact of \$1.7M to Floyd County, Kentucky. It is logical to assume that the building of the DLTS would be a feasible and profitable endeavor to pursue.

**Project Dissemination:****Oral Presentation:**

Chen, S., Henderson, K.V. and Mason, N.D. (2013). Is Dynamic Pricing Viable for Small Market Collegiate Athletics? Annual Conference of Academy of Business Research, San Antonio, TX, September.

**Publication:**

Chen, S., Mason, N.D., Cooper, S.L., and Miller, A. (2014). A Projection of Economic Impact and Benefits of a Proposed Rail System. KAHPERD Journal, 51(2), 58-70.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Mr. Mason worked with Bassmaster for his internship in Spring 2014. He just recently completed his internship in April, 2014, and graduated in May, 2014.

**Tran, Yen****Major:**

Economics/Finance

**Faculty Mentor:**

Ali Ahmadi

**Research/Project Title:**

Impacts of Macroeconomic Factors on Industries' Equity Returns

**Project Abstract/Summary:**

This research project examines the impacts of macroeconomic factors on equity returns of different industries in the United States. The study intends to shed some light on how macro-economic cycle empirically affects sector/industry equity performance. The hypothesis of the research is that there are correlations between equity returns of different industries with the macro-economic factors. Multiple regressions with time series adjustment and/or GARCH will be used to estimate this dynamic. In this project, the data are those related to the quarterly equity returns of different industries and the macro-economic measurements. Specifically, data are drawn from the Exchange-Traded Funds (ETF), U.S. Bureau of Labor Statistics, and the Federal Reserve databases. The project is sponsored by the Undergraduate Research Fellowship department at Morehead State University.

**Project Dissemination:**

**Presentations:**

Tran, Yen and S. Ali Ahmadi (2014). Impacts of Macro-economic Factors on Industries' Equity Returns, NCUR Conference, Lexington, KY, April.

Tran, Yen and S. Ali Ahmadi (2014). Impacts of Macro-economic Factors on Industries' Equity Returns, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

People's Choice Award, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Post-Graduation Plans (Seniors only):**

Student has an internship with Goldman Sachs, potential full-time offer afterwards, and plans to get an MBA degree.

## ***SCHOOL OF PUBLIC AFFAIRS***

### **Burns, Donald**

**Major:**

Government

**Faculty Mentor:**

Christine Emrich

**Research/Project Title:**

The Influence of Bordering Nations on Country Political Risk

**Project Abstract/Summary:**

Political risk ratings are widely used by businesses and government to assess a country's political stability with respect to factors such as government stability and accountability, socioeconomic conditions, internal and external tensions and/or conflict, law and order, and bureaucracy quality. The goal of this study was to better understand how a country's own level of political risk may be influenced by that of its neighboring countries. Using industry-standard data for 138 countries, this study examined the relationships between measures of country political risk and (a) the number of neighboring countries in each political risk category and (b) the fractional border length shared with neighboring countries in each political risk category. Results showed that countries with higher political risk ratings were generally located in more risky neighborhoods than countries with lower levels of political risk. Moderately risky nations had proportionally more neighbors with higher, rather than lower, political risk ratings. While very low risk countries had few, if any, neighbors with high or very high political risk, countries with low risk ratings shared borders with nations at all levels of political risk.

**Project Dissemination:**

**Poster Presentation:**

Burns, Donald J. (2014). The Influence of Bordering Nations on Country Political Risk, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

### **Fyffe, Bradley**

**Major:**

Government

**Faculty Mentor:**

William Green

**Research/Project Title:**

Plan B: The FDA, Federal Courts, and Contraceptive Drug Policy Making

**Project Abstract/Summary:**

Plan B is an emergency female contraceptive pill that the Food and Drug Administration has used its legal authority to regulate, but the federal courts have also been involved in making Plan B decisions. This research explores the FDA's Plan B regulatory actions since 1999, when the agency approved the drug, by addressing the following question: how have the federal courts participated in the agency's regulatory process and influenced its marketing decisions? To answer this questions, this research examined the agency's decisions, the arguments of the parties who appealed its decisions, and the reasoning of the federal courts in deciding their cases. This research found that appeals of the agency's decisions produced a dialogue between the FDA and the courts about the age at which Plan B may be purchased and the restrictions on its access. By 2014, this dialogue, defined by federal court decisions, eliminated all age restrictions and expanded access from prescription only to over-the-counter availability.

**Project Dissemination:****Oral Presentation:**

Bradley S. Fyffe (2014). Plan B: The FDA, Federal Courts, and Contraceptive Drug Policy Making, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Bradley S. Fyffe participated in the Summer 2013 Canadian Parliamentary Internship Program and will come to know Canadian politics from the inside. He has interned in the office of Carolyn Bennett, a Liberal Party member of Parliament (MP), an M.D., who was an assistant professor in the Department of Family and Community Medicine at the University of Toronto, and Minister of State for Public Health. In her office he is answering constituency mail, assisting with writing and editing materials sent to the MP's riding (district), conducting research on policy issues and drafting speeches for Ms. Bennett.

**Post-Graduation Plans (Seniors only):**

N/A

**Hutchinson, Madyson****Major:**

Government

**Faculty 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 removed the instituting of 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. The research has developed some initial data and hypotheses on her work and was presented at the Celebration of Student Scholarship.

**Project Dissemination:****Presentation:**

Research findings will be submitted for presentation at the Kentucky Political Science Association and Posters-at-the-Capitol, as well as the Celebration of Student Scholarship, where it was presented in 2014.

**Awards and/or Honors:**

Award winning poster presentation at the 2014 Celebration of Student Scholarship.

**Post-Graduation Plans (Seniors only):**

N/A

**Murphy, Cody****Major:**

Government

**Faculty Mentor:**

Murray Bessette

**Research/Project Title:**

The Lincoln Douglas Debates and the Test of Statesmanship

**Project Abstract/Summary:**

Slavery provides political scientists with the opportunity to study a significant and lasting problem in American History from inception to completion. The events that best encapsulated and expressed the social and political issues stemming from this peculiar institution were the debates between Lincoln and Douglas in 1858. These debates often taken to be the precursor of the Presidential Election of 1860, illustrated the difficulties that arose from the sectional tensions that existed between abolitionist and pro-slavery forces. Surveying the time spanning English settlement in the New World to the 1858 contest, we see how the Lincoln Douglas Debates defined an era of popular politics and how two statesmen approached the most critical social and political issues of their time, and thereby tried to define a nation. This research was generously supported by an Undergraduate Research Fellowship.

**Project Dissemination:****Oral Presentation:**

Murphy, Cody D., and Bessette, Murray S. (2014). The Lincoln Douglas Debates and the Test of Statesmanship, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Merit award for the Celebration of Student Scholarship.

**Post-Graduation Plans (Seniors only):**

The student has been accepted to the Liberty University School of Law.

**Pfalzer, Laura****Major:**

Government

**Faculty Mentor:**

Murray Bessette

**Research/Project Title:**

The Hegelian Notion of Self and Property in Jane Austen's Sense and Sensibility

**Project Abstract/Summary:**

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

**Project Dissemination:****Presentation:**

None due to graduation.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

The student has accepted a position in the MA/MPA programs at Morehead State University.

**Skaggs, Leonidas****Major:**

Government

**Faculty Mentor:**

Jonathan Pidluzny

**Research/Project Title:**

Egypt's Runaway Revolution: Events of the Arab Spring in Egypt, the 2013 Coup d'état and the Rise of the New Egyptian State

**Project Abstract/Summary:**

This study chronicles efforts at constitutional reform in the Arab world in the wake of the Iraq war, and more recently, the uprisings that began in 2011, now known as "the Arab Spring." The poster, and paper upon which it is based, contains a very detailed summary of the Arab Spring in Egypt, chronicling the fall of President Mubarak's regime, the rise of an interim military government, the subsequent election of a Muslim Brotherhood dominated Parliament and later, the election of President Morsi (the Brotherhood's candidate for the country's chief executive post), the organization of a Constitutional Convention, the emergence of popular unrest directed against the new Brotherhood-dominated government, and the counter-coup that ousted the Morsi government and reinstated a military government in Egypt. A number of important questions are raised by Egypt's tumultuous recent history. To what extent are the new democratic constitutions that have been established likely to achieve the objectives of classical liberalism – including the limitation of government power, the establishment of a private sphere within which the individual is free to pursue happiness as he or she defines it, the limitation of the influence of religion in politics, the rule of law, universal equality before the law, etc.? Is Islam an impediment in the way of liberalizing reform? What role did America play as the revolution unfolded? What role can America play going forward? The project concludes that there is a difference between limited and liberal government and the employment of democratic procedures and speculates that the politicization of Islam in Egypt – through the M.B. and related organizations – played an important contributing role. The project suggests that a form of limited constitutional government that empowers counter-majoritarian actors may be best for the country going forward, and proposes that American policy makers contemplate a return to foreign policy realism – emphasizing stability and good government, while deemphasizing elections – as guiding strategy in the Middle East. Further research is recommended, especially on the question of U.S. foreign policy in the regime after the Arab Spring and the region's recent failed democratic experiments.

**Project Dissemination:****Oral Presentation:**

Skaggs, Clay (2014). Egypt's Runaway Revolution: Events of the Arab Spring in Egypt, the 2013 Coup d'état and the Rise of the New Egyptian State Poster Presentation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Elected President of Morehead State University's Society Pro Legibus, 2014.

Interned on Parliament Hill in Ottawa, ON, Canada.

**Post-Graduation Plans (Seniors only):**

The student will attend law school after graduating in 2015.

**Woodall, Sarah****Major:**

Government

**Faculty 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:**

**Presentation:**

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

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

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

### ***ACADEMIC HONORS PROGRAM***

**Prince, Jasmine**

**Major:**

Pre-Med

**Faculty Mentor:**

Philip Krummrich

**Research/Project Title:**

Honors and the Overseas Experience

**Project Abstract/Summary:**

We plan to investigate the various kinds of overseas experiences available – traditional study programs, exchanges, research and internship opportunities, volunteer work, and independent travel, among others – and analyze the potential value of each for Honors students. Through a combination of interviews, surveys, and literature review, we will explore the options and how they can contribute to Honors education.

**Project Dissemination:**

**Presentations:**

We plan to publish an article in one of the journals devoted to best practices in Honors education, to make at least one conference presentation, and to present at the 2015 Celebration of Student Scholarship. We have also submitted a proposal for a book chapter.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

### ***DEPARTMENT OF ART AND DESIGN***

**Blanton, Mary**

**Major:**

Studio Art

**Faculty 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. 2013/14 arts programming includes 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 art from Kentucky (The Bluegrass Biennial). 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:****Presentation:**

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 Celebration of Student Scholarship, and her exhibition documentation photography is published in the Claypool-Young Art Gallery's Facebook page.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

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

**Burns, Heather****Major:**

Art

**Faculty Mentor:**

Jeanne Petsch

**Research/Project Title:**

Art Enrichment through Mural Creation

**Project Abstract/Summary:**

Research was conducted with "at risk" high school students from The Rowan County Alternative School (Bluegrass Discovery Academy) and K-5 students who attend the Haldeman Community Center After School Program, to study the effects of art enrichment through mural painting. The murals were created by the students and then displayed in their school and program center. Throughout the creation of the murals, the students' aesthetic awareness, identity development, and ability to work collaboratively to create group projects was studied. The findings include greater ability to engage in collaborative work, increase in student interest in art, and a high level of idea development. This research was supported by the George M. Luckey Jr. Academic Honors Program.

**Project Dissemination:****Oral Presentation:**

Burns, Heather and Petsch, Jeanne (2014). Art Enrichment through Mural Creation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Couch, Jeffery****Major:**

International Studies/Spanish

**Faculty Mentor:**

Seth Green

**Research/Project Title:**

Ceramics Facility Management and Kiln Maintenance/Firing

**Project Abstract/Summary:**

This research project will explore various ceramics facility management skills. Under the direction of Mr. Green, Mr. Couch will learn and perform the following tasks: mixing studio clays, slips, 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:****Poster Presentation:**

Couch, Jeffery and Seth Green (2014). Ceramics Facility Management and Kiln Maintenance/Firing, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Goble, Sabrina****Major:**

Art

**Faculty Mentor:**

Seth Green

**Research/Project Title:**

Ceramics Facility Management and Kiln Maintenance/Firing

**Project Abstract/Summary:**

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

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

**Project Dissemination:****Poster Presentation:**

Goble, Sabrina, and Green, Seth (2014). Ceramics Facility Management and Kiln Maintenance/Firing, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to continue working in Ceramics to prepare for a career as a studio artist.

**Helton, Julieann****Major:**

Art

**Faculty Mentor:**

Joy Gritton

**Research/Project Title:**

Designing on a Dime: Creating Promotional Materials 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 will result in a public relations campaign for the Haldeman After School Program. Research will be conducted on ways that similar programs have communicated about their services and needs to a larger community. Successful strategies will be identified and promotional materials designed. Preliminary designs will be presented to the Community Center board for feedback. The project will conclude with the production of a range of materials that 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 (with reading being a primary focus).

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 a year-round economic, educational, recreational and social well being 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 has received staffing support from MSU through the Undergraduate Research Fellowship and Regional Engagement Fellowship programs.

This project has shown immediate and positive results. After the promotional materials were designed and produced they were sold as a fundraiser to raise money to support the Haldeman After School Program. The money that has been raised will go toward supplies, snacks, and other materials that will directly benefit the participating students in the program. The promotional materials featured artwork from the students which has sparked creativity, participation, and excitement amongst the students. It is the hope that this project can act as the foundation for an annual tradition at the Haldeman Center.

**Project Dissemination:**

**Poster Presentations:**

Helton, Julieann (2014). Designing on a Dime: Creating Promotional Materials for a Non-Profit Organization, Graduate Research Conference, University of Kentucky, Lexington, KY, March.

Helton, Julieann (2014). Designing on a Dime: Creating Promotional Materials for a Non-Profit Organization, Appalachian Studies Association Conference, Huntington, WV, March.

Helton, Julieann (2014). Designing on a Dime: Creating Promotional Materials for a Non-Profit Organization, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

In addition, the materials Helton designed have been disseminated widely in Rowan County, including a calendar, which has already raised over \$500 for the After School Program.

**Awards and/or Honors:**

Outstanding Sophomore Award for the Department of Art and Design.

**Post-Graduation Plans (Seniors only):**

N/A

**Hobbs, Susan**

**Major:**

Sociology

**Faculty Mentor:**

Joy Gritton

**Research/Project Title:**

Keeping Traditional Music Alive in "New Appalachia"

**Project Abstract/Summary:**

Traditional music is a rich part of Appalachian heritage. However, due to the changing music and recording industry, many aspects of this form of music are being lost in translation. The Eastern Kentucky Arts Project (EKAP) aims to promote and preserve traditional music in our part of the Appalachian region. EKAP is a web-based program that allows musicians, audience members, and travelers alike to have a glance of traditional music venues, repair shops, luthiers, dances, and jams. This project is making headway in allowing the traditional music of our region to be readily available online.

**Project Dissemination:**

**Presentation:**

Hobbs, Susan Montana (2014). Keeping Traditional Music Alive in "New Appalachia." University of Kentucky Graduate Research Conference, University of Kentucky, Lexington, KY, March.

**Poster Presentations:**

Hobbs, Susan Montana (2014). Keeping Traditional Music Alive in "New Appalachia." Appalachian Studies Association Conference, Huntington, WV, March.

Hobbs, Susan Montana (2014). Keeping Traditional Music Alive in "New Appalachia." 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

**Kuchenbrod, Andrew**

**Major:**

History

**Faculty Mentor:**

Joy Gritton

**Research/Project Title:**

Haldeman Community Center After School Enrichment Program

**Project Abstract/Summary:**

This project represents a collaboration between the Eastern Kentucky Arts Project (coordinated by Joy Gritton) and the Haldeman Community Center (coordinated by RoseMary Johnson).

The goal of this program is to offer a safe, child-centered, nurturing after school enrichment program for elementary students Monday through Thursday during the months of September, and October (2014) at the Haldeman Community Center. Participating children enjoy physical activities, a nutritious snack, planned learning activities, tutoring, and help with their homework (with reading and math being of primary focus). Attendance averages 17 students per day. Special offerings include theatre (led by Octavia Fleck), art (coordinated by Heather Burns), and music (led by Joe Rivers). MSU Education and Honors students assist with a range of activities. Activities leading up to the actual program sessions will include readying the physical space (repairs on site, building of shelving, clean up, etc.) organization of the small children's library, building raised beds for a community garden project, and activity preparation and planning.

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. 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.

Results are of a continuous nature, although evidence of this program's positive effects have been seen in the students. Students have demonstrated more willingness to eat fruits and vegetables for snack, rather than a less-nutritious alternative; they have also shown improved ability to work together in groups not necessarily of their own choosing. On a recent survey, parents noted progress in their children's academic success and general confidence.

Andrew has also focused his efforts on the development of the Haldeman Model. Using his own framework for analysis, Andrew drew from the experiences of the Haldeman Community Center and its after-school program in order to construct a step-by-step model for establishing community-based programs. Future work on this model would include comparisons with the experiences of other community organizations to see how representative the model is of existing organizations, as well as the generalizability of the model for future community organizations of all types to follow.

**Project Dissemination:****Presentations:**

Kuchenbrod, Andrew (2014). The Haldeman After-School Program: A Model for Community Service, University of Kentucky Graduate Research Conference, University of Kentucky, Lexington, KY, March.

Kuchenbrod, Andrew (2014). Imagined Possibilities for the Region's Children: Community After School Programs, Appalachian Studies Association Conference, Huntington, WV, March.

Kuchenbrod, Andrew (2014). Understanding the Process of Identifying Community Needs Through the Haldeman After School Program, Celebration of student Scholarship, Morehead State University, Morehead, KY, April.

Information about this program is disseminated primarily through the Haldeman Community Center website and the Haldeman and Eastern Kentucky Art Project Facebook pages. The program is also promoted through the public school system (Rodburn Elementary School) an through posters about special events posted throughout the community and a calendar that features the children's art work.

**Awards and/or Honors:**

A presentation Andrew gave at the 2014 Celebration of Student Scholarship detailing the role of community collaboration in program planning – a key aspect of the Haldeman Model – earned a Certificate of Merit. He is also the 2014 recipient of the Greg Goldey Citizen Action Award, granted by the MSU Department of History, Philosophy, Religion, and Legal Studies.

**Post-Graduation Plans (Seniors only):**

Upon the completion of his senior year, Andrew intends to work with a non-profit agency or community center in Eastern Kentucky, putting his experience and knowledge into practice in order to help others. Hand in Hand Ministries of Louisville, KY, has expressed interest in hiring Andrew after his graduation as an administrator and facilitator of programs run out of the Auxier Center, in Floyd County, KY.

**Madden, Tara****Major:**

Art/Spanish

**Faculty 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. 2013/14 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 art from Kentucky (The Bluegrass Biennial). Ms. Madden was involved in visiting artist logistics and hospitality including Anne Harris's visit to Morehead State University as an artist and exhibition juror, 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 \$3,000 in student art and craft sales in 2013).

**Project Dissemination:****Presentations:**

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 Celebration of Student Scholarship in April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Shepherd, Sarah****Major:**

Psychology

**Faculty Mentor:**

Joy Gritton

**Research/Project Title:**

What Do You Do When the Bathroom Sink Falls Off the Wall? The Haldeman after School Enrichment Program

**Project Abstract/Summary:**

The Haldeman After School Program is a locally funded and staffed organization that provides a safe place for children to come and participate in activities such as music, art, theater, and Spanish, while also getting help with their studies and enjoying a nutritious snack. This project addressed a variety of struggles the program staff faces regularly, such as finding volunteers; creating ways to support volunteers through better orientation and more efficient communication, providing for the safety of the children by establishing clear rules and helpful parent registration forms, making sure there are resources to provide a healthy snack for the day and encouraging the children to try new foods; and meeting challenges related to the program's location in an aging facility where there is no kitchen, the building is difficult and expensive to heat, and the bathroom sink falls off the wall! Through finding solutions to these obstacles and many others, the program "happens" and makes a difference in the lives of its children. This project was supported by the Undergraduate Research Fellowship Program, the Department of Art and Design, and the Haldeman Community Center.

**Project Dissemination:****Poster Presentation:**

Shepherd, Sarah (2014). What Do You Do When the Bathroom Sink Falls Off the Wall?, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Oral Presentations:**

Shepherd, Sarah (2014), The Haldeman After-School Program: A Model for Community Service, University of Kentucky Graduate Research Conference, University of Kentucky, Lexington, KY, March.

Shepherd, Sarah (2014), Imagined Possibilities for the Region's Children: Community After School Programs, Appalachian Studies Association Conference, Huntington, WV, March.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

## ***DEPARTMENT OF COMMUNICATIONS, MEDIA, AND LEADERSHIP STUDIES***

### **Hammond, Pamela**

**Major:**

Multimedia Production

**Faculty Mentor:**

Jeffrey Hill

**Research/Project Title:**

1. The Morehead International Independent Film Festival (Season 2)
2. The Video Vault: The Kentucky Edition

**Project Abstract/Summary:**

The Morehead International Independent Film Festival (MiiFF, for short) is a film festival based out of Morehead, Kentucky, accepting submissions from any country. The show airs on KET, exposing up to 5 million Appalachians to an eclectic series of films from some of the finest independent filmmakers the world has to offer. Films are to be between 5-15 minutes, and appropriate for family viewing, with 2-3 films shown per episode for four episodes. Each film on the program features an introductory segment from Professor Jeffrey Hill, who details the film's premise, director, and location of creation.

The Video Vault: The Kentucky Edition: In five 90 minute 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:****Oral Presentation:**

Pamela Shay Hammond and Ryan E. Padgett (2014). Hurry Up and Wait: The Video Production Process, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Both projects were granted approval to air on Kentucky Educational Television, the largest PBS affiliate in the United States, beginning in July, 2014.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

### **Johnston, Allison**

**Major:**

Communications

**Faculty Mentor:**

Noel Earl

**Research/Project Title:**

Leadership Lessons Learned at Summer Camp

**Project Abstract/Summary:**

The purpose of this qualitative study was to investigate the leadership characteristics and lessons that are learned in a summer camp environment. This was inspired by the award winning novel *The Cabin Path* by Jay Gilbert and compared to the popular *Reframing Leadership* by Bolman and Deal using a typological approach. The hypothesis was that those leadership lessons identified by Jay Gilbert were in fact, essential to becoming a leader. The goal was to establish the lessons outlined in the novel as compared to the theory and identify their value beyond summer camp into a career field and adulthood.

**Project Dissemination:****Poster Presentations:**

Johnston, Allison (2014). Leadership Lessons Learned at Summer Camp, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Johnston, Allison (2014). Leadership Lessons Learned at Summer Camp, Posters-at-the-Capitol, Frankfort, KY, February.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to finish her Masters in Public Administration and becoming a VISTA with Americorps.

**Kadish, Sarah****Major:**

Multimedia Production

**Faculty Mentor:**

John Flavell/Tim Creekmore

**Research/Project Title:**

Living in Between, a Documentary

**Project Abstract/Summary:**

The history, landscape, and in some cases, culture of southeastern Kentucky has been shaped by the extraction industry: first timber, then coal. Regardless of right or wrong, pro or con, the presence of this industry forces Appalachians to make difficult decisions. Some of those decisions have forced Appalachians to recognize a shift in their relationship with the land. This short documentary was produced as means of exploring and sharing relationships between land, cultural values, and the mono-economy created by the coal industry in southeastern Kentucky. Multi-generational Appalachians discuss these different aspects and share their perspectives, as well as their personal tribulations and hopes for the future. This documentary was supported by a MSU Undergraduate Research Fellowship.

**Project Dissemination:****Presentation:**

It aired on MSU-TV, Channel 85 on Morehead State University's campus  
msutv.net, <http://www.msutv.net/#!/films-and-documentaries--living-in-betw/c1zq0>  
vimeo.com, <http://vimeo.com/92667160>

Currently in discussion with KET for summer or fall airing.

**Awards and/or Honors:**

Certificate of Merit, Morehead State University's 2014 Celebration of Student Scholarship.

Currently competing in the following film competitions:

The Telly Awards

Accolade Best Shorts

Louisville International Film Festival

**Post-Graduation Plans (Seniors only):**

Accepted into MFA program in Film at Ohio University

**Padgett, Ryan****Major:**

Multimedia Production

**Faculty Mentor:**

Jeffrey Hill

**Research/Project Title:**

1. The Morehead International Independent Film Festival (Season 2)
2. The Video Vault: The Kentucky Edition

**Project Abstract/Summary:**

The Morehead International Independent Film Festival (MiiFF, for short) is a film festival based out of Morehead, Kentucky, accepting submissions from any country. The show airs on KET, exposing up to 5 million Appalachians to an eclectic series of films from some of the finest independent filmmakers the world has to offer. Films are to be between 5-15 minutes, and appropriate for family viewing, with 2-3 films shown per episode for four episodes. Each film on the program features an introductory segment from Professor Jeffrey Hill, who details the film's premise, director, and location of creation.

The Video Vault: The Kentucky Edition: In five 90 minute 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:****Oral Presentation:**

Pamela Shay Hammond and Ryan E. Padgett (2014). Hurry Up and Wait: The Video Production Process, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Both projects were granted approval to air on Kentucky Educational Television, the largest PBS affiliate in the United States, beginning in July 2014.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Porter, Amara****Major:**

Convergent Media

**Faculty 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:**

The student helped produce and write segments for the Morehead State University television program Hear Me Roar. The job involved booking guests, conducting research, developing interview questions, and creating, writing, and producing content for video segments. In this position she was mentored as a television producer, writer and feminist activist. She produced a spotlight segment on women and religion.

Two video documentaries were produced. A ten minute version was developed for MSU-TV and conference presentations. A thirty minute version was produced for a proposed show for Kentucky Educational Television.

**Project Dissemination:**

The ten minute documentary was shown at the International Oxford Roundtable in England, Women in Education Conference. It was also shown at the Appalachian Studies Conference at Marshall University and the American Popular Culture Association National Conference in Chicago. The work was shown on Hear Me Roar for MSU-TV.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

***DEPARTMENT OF ENGLISH*****Allen, Zachary C.****Major:**

Secondary English

**Faculty Mentor:**

Alison Hruby

**Research/Project Title:**

Rural Reluctant Readers: The Role of Identity in Learning to Read in High School

**Project Abstract/Summary:**

A class of high schoolers were studied with a focus on a small cluster of individuals in order to ascertain an optimal method of fostering reading skills and inclination, as well as determining what leads a student to consider himself or herself competent. Reading journals, literature circles, interviews, and field observations were all employed to determine the students' level of interest. Book talks, literature reviews, and other methods were utilized in an attempt at fostering interest. The students were provided with reading materials tailored to their interests. By granting the students the choice of what to read, and when to read, they felt that reading as an activity was a choice rather than a chore. Because of this, they were more engaged in the activity. They became more passionate about their book choices, and seemed to gain confidence in their abilities. Rather than being a competition, the classroom became a learning community in which the students came together and voted on how to proceed. The study was funded by respective Undergraduate Research Fellowships. The study was funded, in part, by a Matched Fund Grant from the Center for Regional Engagement at Morehead State University.

**Project Dissemination:****Presentation:**

The project was presented as a poster in Morehead State University's Celebration of Student Scholarship showcase. An article concerning Youth Lens was also recently submitted for publication to *The English Journal* as a result of this study.

**Awards and/or Honors:**

The student was a participant of Morehead State University's 2014 Celebration of Student Scholarship.

**Post-Graduation Plans (Seniors only):**

N/A

**Caldwell, Ben****Major:**

English

**Faculty Mentor:**

Glen Colburn

**Research/Project Title:**

Freedom, Happiness, and the General Will: Rousseau's Philosophy on Individual Happiness

**Project Abstract/Summary:**

Although the philosophy of Jean-Jacques Rousseau is among the most well-read in the Western world, little has been made of the sometimes contradictory ways that he linked freedom and happiness with civil responsibility; despite advocating for personal and intellectual freedom in all men, Rousseau also advocates the benefits of what he called the General Will, a consensus by the populace for the good of all men that is often described in terms that seem totalitarian. Drawing from Rousseau's major writings – *The Social Contract*, *Emile*, and *The Discourses* – this research aims to present a unification of his philosophies on personal freedom, happiness, and civic responsibility. When this body of work is viewed, we see that Rousseau only valued the General Will insofar as it allowed individuals to achieve their own goals, and that the General Will should in fact increase their ability to find happiness. This research was funded by an Undergraduate Research Fellowship.

**Project Dissemination:****Presentations:**

Presented at the 2013 and 2014 Celebrations of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Recipient of the Certificate of Exceptional Merit at the 2014 Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Post-Graduation Plans (Seniors only):**

The student will spend this year working and applying to graduate schools with MFA Programs in Creative Writing.

**Collins, Devon****Major:**

English Education

**Faculty Mentor:**

Deanna Mascle

**Research/Project Title:**

The Impact of Writing Studio on the Self-Efficacy of Developing Writers and Developing Teachers

**Project Abstract/Summary:**

Despite a dozen years of formal writing instruction, many students continue to struggle with writing when they enter college. These struggles are often the result of the student's belief that she/he is not and cannot become a writer. This lack of confidence negatively affects student motivation and performance which can have a severe impact on student success in college and beyond. We are conducting a participatory research project to study the impact of our Writing Studio program on this cycle of writing failure.

During our pilot year we discovered that the MWP Writing Studio had a tremendous impact on the development of struggling writers. The writers we worked with reported increases in confidence and competence as well as improved attitudes toward writing. Instructors reported similar results as well as improvements in class discussion and engagement. We would like to continue to study the effectiveness of this method of writing support by working with students of instructors not trained in National Writing Project methods to determine if this effect is diminished or maintained at the same level.

In addition, we found that our Peer Writers grew in confidence and competence as writing teachers over the course of the year and we would like to study this in more depth as we know that teacher self-efficacy is strongly linked to student self-efficacy.

**Studio Model:** We are an embedded tutor program supported by a learning community. Our Peer Writers work with small groups of developmental writing students to provide guidance and support tailored to the needs of the group. The Peer Writers, the class instructors, and MWP Site Leaders work together as a learning community to support the work of the writing groups and the Peer. Unlike a writing center or traditional tutoring program, which focuses on a specific assignment during one session, writing studio groups focus on the writer as a whole using student assignments as only one of many tools and work together over time to help the group members become self-regulating.

The student is one of five English Education students recruited to work with Dr. Mascle on this project as it is too large to undertake with only one student. Each student will lead a studio group and keep a reflection journal as well as participate in focus group sessions.

**Project Dissemination:****Presentations:**

College Readiness: Writing Problems and Solutions, 2013 Writing Eastern Kentucky Conference, Morehead, KY.

Badges, Blogs, and Google+: Creating a Community of Writers Using Social Capital and Low-Stakes Writing, 2014 Kentucky Council of Teachers of English Conference, Lexington, KY.

The Advantages and Disadvantages of the Writing Studio Model (poster), Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to pursue a career teaching high school English.

**Conn, Chelise****Major:**

History/Legal Studies

**Faculty Mentor:**

Kristina DuRocher

**Research/Project Title:**

The Eugenics Movement in America, 1920-1980

**Project Abstract/Summary:**

The Eugenics movement in America affected women of various backgrounds during the 1920s-1980s. For many years this movement was seen by historians as ending with World War II and was isolated as pre-World War II era history. However, recently scholars have challenged this idea, noting that the practice of compulsory sterilization did not end and inspired new sterilization trends that affected post- World War II era culture, politics, medicine and society. Therefore, the eugenics movement can be viewed as a continuing movement that has evolved within American society and is still evident today. This research utilized various secondary and primary sources, such as newspaper articles, legislation, and lawsuits dealing with compulsory sterilization, to locate the voices of these women in order to analyze the eugenics movements impact on the post-World War II era, especially in regard to gender, race, and class. African American women, women of mixed race, immigrants, and poor and working class white women who conceived too many children became the target of these sterilizations. Additionally, many Americans utilized theories of Social Darwinism and the belief that mental and physical defectiveness was a genetic disorder to justify performing sterilizations on women without their knowledge, an inherently violent process that led

these women to become victims of those social leaders who sought to “purify” society by sterilizing “unfit” women. Thus, those defined as feeble-minded, the insane, the blind, the deaf, and criminals were included in this group. By 1932, twenty-eight states had adopted the practice of compulsory sterilization of the mentally impaired. By the 1970s, sixty thousand Americans had been subjected to forced sterilization. During the 1950s, 1960s, and 1970s, standards of reproductive “fitness” shifted due to social anxieties concerning blacks’ demands for racial equality, the rising rate of Mexican and Puerto Rican immigration, the development of federal antipoverty programs, the expansion of welfare, and fears of overpopulation. As women’s societal roles began to change within American politics and culture, so too did the eugenics movement. Examining this movement offers a view into the evolution of social attitudes about women of different class, race, and educational backgrounds as well as bringing to light the vices of those women, largely minimized in scholarship, who experienced the physical and emotional violence of this movement.

**Project Dissemination:**

**Poster Presentations:**

Conn, Chelise L. and Kristina DuRocher (2014). The Eugenics Movement in America, 1920-1980, National Conference on Undergraduate Research, Lexington, KY, April, 2014.

Conn, Chelise L. and Kristina DuRocher (2014). The Eugenics Movement in America, 1920-1980, Posters-at-the-Capitol, Frankfort, KY, February.

Conn, Chelise L. and Kristina DuRocher (2014). The Eugenics Movement in America, 1920-1980, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Oral Presentation:**

Conn, Chelise L. (2014). Margery Kempe: Medieval Mystic, Traveler, and Priest, Phi Alpha Theta: National History Honor Society Conference, Richmond, KY, March.

**Awards and/or Honors:**

Victor Howard Award for outstanding paper in history, 2014.

**Post-Graduation Plans (Seniors only):**

Student plans on pursuing graduate studies in American and women’s history.

**Farrell, Jessica**

**Major:**

Mathematics

**Faculty Mentor:**

Jennifer Birriel

**Research/Project Title:**

Analyzing Great World Wide Star Count Night Sky Brightness Data

**Project Abstract/Summary:**

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 “Glove 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 post explanations for observed differences.

**Project Dissemination:**

**Presentation:**

The student gave a talk locally at the Morehead State University Celebration of Student Scholarship in April, and in May at the KY Area Meeting of the American Astronomical Society in Lexington, KY, at the University of Kentucky. We plan on submitting a paper for publication in the Journal of the American Association of Variable Star Observers.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Student has 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 of 2016. She plans to continue research in light pollution over the next two years.

## Haas, Samantha

**Major:**

English

**Faculty Mentor:**

Alison Hruby

**Research/Project Title:**

Rural Reluctant Readers: The Role of Identity in Learning to Read in High School (IRB Protocol 13-07-01)

**Project Abstract/Summary:**

This project will be the continuation of a service learning project in which Dr. Hruby is already involved, with the addition of a research component. The project has taken place over one school year, in a high school. The participants are tenth and eleventh graders who have been identified as struggling readers on standardized tests of reading progress and placed in a remedial English class as a result. The project provides these students with reading materials based on their skill level and interests. The research study focuses on capturing the students' identities as readers as they choose and respond to a variety of reading materials. The guiding research question has been, under what circumstances do these students act and view themselves as competent readers?

So far, students seem more inclined to read when they are given the agency of choosing what to read. With both their interest level and their comprehension being assessed through class discussions and reading journals, the research team has noted a marked improvement from the beginning of the study in how the students view themselves as readers, as well in their skills as readers.

**Project Dissemination:**

**Poster Presentation:**

Haas, Samantha L., and Allen, Zachary C. (2014). Rural Reluctant Readers: The Role of Identity in Learning to Read in High School, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

## Ison, Megan

**Major:**

English Education

**Faculty Mentor:**

Deanna Mascle

**Research/Project Title:**

The Impact of Writing Studio on the Self-Efficacy of Developing Writers and Developing Teachers

**Project Abstract/Summary:**

Despite a dozen years of formal writing instruction, many students continue to struggle with writing when they enter college. These struggles are often the result of the student's belief that she/he is not and cannot become a writer. This lack of confidence negatively affects student motivation and performance which can have a severe impact on student success in college and beyond. We are conducting a participatory research project to study the impact of our Writing Studio program on this cycle of writing failure.

During our pilot year we discovered that the MWP Writing Studio had a tremendous impact on the development of struggling writers. The writers we worked with reported increases in confidence and competence as well as improved attitudes toward writing. Instructors reported similar results as well as improvements in class discussion and engagement. We would like to continue to study the effectiveness of this method of writing support by working with students of instructors not trained in National Writing Project methods to determine if this effect is diminished or maintained at the same levels.

In addition, we found that our Peer Writers grew in confidence and competence as writing teachers over the course of the year and we would like to study this in more depth as we know that teacher self-efficacy is strongly linked to student self-efficacy.

Studio Model: We are an embedded tutor program supported by a learning community. Our Peer Writers work with small groups of developmental writing students to provide guidance and support tailored to the needs of the group. The Peer Writers, the class instructors, and MWP Site Leaders work together as a learning community to support the work of the writing groups and the Peer. Unlike a writing center or traditional tutoring program, which focuses on a specific assignment during one session, writing studio groups focus on the writer as a whole using student assignments as only one of many tools and work together over time to help the group members become self-regulating.

The student is one of five English Education students recruited to work with Dr. Mascle on this project as it is too large to undertake with only one student. Each student will lead a studio group and keep a reflection journal as well as participate in focus group sessions.

**Project Dissemination:**

**Presentations:**

Filing in the Gaps: Engaging and Supporting the Development of Writers at Morehead State University, 2013 Kentucky Engagement Conference, Eastern Kentucky University, Richmond, KY.

College Readiness: Writing Problems and Solutions, 2013 Writing Eastern Kentucky Conference, Morehead, KY.

Badges, Blogs, and Google+: Creating a Community of Writers Using Social Capital and Low-Stakes Writing, 2014 Kentucky Council of Teachers of English Conference, Lexington, KY.

The Advantages and Disadvantages of the Writing Studio Model, (poster), 2014 Morehead State University Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Just in Time: Embedded Tutors Supporting Writing Across the Disciplines, 2014 Kentucky Pedagogicon, Eastern Kentucky University, Richmond, KY.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

To pursue a career teaching high school English.

**Jones, Whitney**

**Major:**

English

**Faculty Mentor:**

Deanna Mascle

**Research/Project Title:**

The Impact of Writing Studio on the Self-Efficacy of Developing Writers and Developing Teachers

**Project Abstract/Summary:**

Despite a dozen years of formal writing instruction, many students continue to struggle with writing when they enter college. These struggles are often the result of the student's belief that s/he is not and cannot become a writer. This lack of confidence negatively affects student motivation and performance which can have a severe impact on student success in college and beyond. We are conducting a participatory research project to study the impact of our Writing Studio program on this cycle of writing failure.

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The student is one of five English Education students recruited to work with Dr. Mascle on this project as it is too large to undertake with only one student. Each student will lead a studio group and keep a reflection journal as well as participate in focus group sessions.

**Project Dissemination:**

**Poster Presentation:**

Alex Reinke, Whitney Jones, Julie Rehkamp and Deanna Mascle (2013). The Peer Writers, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Presentation:**

College Readiness: Writing Problems and Solutions, 2013 Writing Eastern Kentucky Conference, Morehead, KY.  
Badges, Blogs, and Google+: Creating a Community of Writers Using Social Capital and Low-Stakes Writing, 2014 Kentucky Council of Teachers of English Conference, Lexington, KY.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to teach high school English in Kentucky.

**Reinke, Alexandra**

**Major:**

English

**Faculty Mentor:**

Deanna Mascle

**Research/Project Title:**

The Impact of Writing Studio on the Writing Self-Efficacy of Developing Writers and Developing Teachers

**Project Abstract/Summary:**

Despite a dozen years of formal writing instruction, many students continue to struggle with writing when they enter college. These struggles are often the result of the student's belief that s/he is not and cannot become a writer. This lack of confidence negatively affects student motivation and performance which can have a severe impact on student success in college and beyond. We are conducting a participatory research project to study the impact of our Writing Studio program on this cycle of writing failure.

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The student is one of five English Education students recruited to work with Dr. Mascle on this project as it is too large to undertake with only one student. Each student will lead a studio group and keep a reflection journal as well as participate in focus group sessions.

**Project Dissemination:**

**Poster Presentation:**

Alex Reinke, Whitney Jones, Julie Rehkamp and Deanna Mascle (2013). The Peer Writers, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Presentations:**

College Readiness: Writing Problems and Solutions, 2013 Writing Eastern Kentucky Conference, Morehead, KY.  
Badges, Blogs and Google+: Creating a Community of Writers Using Social Capital and Low-Stakes Writing, 2014  
Kentucky Council of Teachers of English Conference, Lexington, KY.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Whisman, Benjamin****Major:**

Creative Writing

**Faculty Mentor:**

Thomas Williams

**Research/Project Title:**

Literary Citizenship in the Face of the Apocalypse

**Project Abstract/Summary:**

How do writers continue on in an age when anyone can get published and so few care to read? The focus of this research revolved around oversaturation of written work and an overstimulation of the American readership. Our work began with editorial duties at American Book Review. This evolved choosing books to be reviewed, assigning reviewers, and editing reviews. Our study was furthered with an interview of Davis Schneiderman, titled I've Never Been Me, which appeared in the spring 2014 issue of Rain Taxi Review of Books. Our research culminated with a panel discussion at the 2014 Kentucky Philological Association conference. The panel was titled Fiction in the Face of the Apocalypse: Why Write Now, with questions focused on the problems plaguing the publishing industry as well as writers in the digital age.

**Project Dissemination:****Oral Presentation:**

Whisman, Ben and Williams, Thomas, Ph.D. (2014). Panel Discussion: Fiction in the Face of the Apocalypse: Why Write Now? Kentucky Philological Association Annual Conference, Lexington, KY, March.

Whisman, Ben and Williams, Thomas, Ph.D. (2014). Literacy Citizenship in the Face of the Apocalypse: Why Write Now? Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Book Review:**

Whisman, Ben and Williams, Thomas, Ph.D. (2014). Davis Schneiderman: I've Never Been Me, Rain Taxi: Review of Books, 28-30, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student is applying to MFA programs in the fall.

***DEPARTMENT OF HISTORY, PHILOSOPHY, RELIGION, AND LEGAL STUDIES*****Blevins, Todd****Major:**

History

**Faculty Mentor:**

Alana Cain Scott

**Research/Project Title:**

A County on Fire: The Second Great Awakening and the Birth of Small-Town Evangelism

**Project Abstract/Summary:**

Bath County, like many other small communities, was revolutionized by the Second Great Awakening. This project will examine how Bath County and similar communities were affected by this movement. First, the county was transformed by the new denominations and pastors that were introduced to the area through the renowned Cane Ridge revival. Second, commoners that previously could not be a part of traditional churches now sought out groups that shared their beliefs. These commoners could now develop intimate relationships with God rather than wonder why they were excluded from houses of worship. Lastly, though some might suggest that the Second Great

Awakening came about as a result of the American Revolution, the movement developed independently of this event, largely due to the economic conditions of small communities like Bath County. The research examines secondary source studies such as Paul Keith Conkin's *Cane Ridge: America's Pentacost*, yet hinges on primary source research such as church records and newspaper materials from Bath County locations such as Owingsville.

**Project Dissemination:**

The plan is for the student to complete a conference-length paper for presentation at the Spring 2014 Regional Phi Alpha Theta Conference on March 1, 2014, at Eastern Kentucky University and to submit a journal-length manuscript for consideration to a peer-reviewed academic journal, such as *The Historian*, which welcomes undergraduate submissions. He will also prepare a presentation for the Spring 2014 Celebration of Student Scholarship.

**Awards and/or Honors:**

Student is going to submit his paper for two awards, one, the state Thomas Clark Undergraduate Paper Award (for a paper on Kentucky History) and at the EKV Phi Alpha Theta Conference.

**Post-Graduation Plans (Seniors only):**

Student took the GRE in September 2013, and is making tentative plans to attend graduate school in history.

**Justice, Jessica**

**Major:**

Philosophy

**Faculty Mentor:**

Scott Davison

**Research/Project Title:**

The Mystery of Free Will

**Project Abstract/Summary:**

An investigation of the disagreement between Peter Van Inwagen and R.E. Hobart concerning the nature of free will.

**Project Dissemination:**

**Presentation:**

The paper project is still in process; The student began the UG Fellowship late in the spring semester.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Messer, Katherine**

**Major:**

History

**Faculty Mentor:**

Alana Cain Scott

**Research/Project Title:**

Cries for Democracy: A Look at the Tiananmen Square Protests

**Project Abstract/Summary:**

After getting some contest from her summer research and early secondary source readings, the focus of Ms. Messer's research will be recently de-classified telegraphs between American agencies both at home and in China in order to gain a first-hand look at the events from observers' perspectives. This will be the focus during the fall semester. In the spring semester, given time constraints, Ms. Messer will begin to examine memoirs and other first-hand accounts from protest participants to compare those experiences with what the observers recorded.

**Project Dissemination:**

The student presented a poster on her project at the February 2014 Posters-at-the-Capitol and at the April 2014 Celebration of Student Scholarship. She presented a paper on her project at the March 2-14 Regional Phi Alpha Theta Conference at Eastern Kentucky University and will be published in an upcoming *Papers and Publications of Undergraduate Research*.

**Awards and/or Honors:**

Student has been awarded a full teaching assistantship at the University of Oregon.

**Post-Graduation Plans (Seniors only):**

Student begins a paid immersion language program in Chinese at the University of Oregon in June, and will begin her M.A. in Asian Studies at the University of Oregon this upcoming August.

## ***DEPARTMENT OF INTERNATIONAL AND INTERDISCIPLINARY***

### **Parker, William T.**

**Major:**

Math

**Faculty Mentor:**

Gary O'Dell

**Research/Project Title:**

Historic "Moonshine" Distilling Sites in the Daniel Boone National Forest

**Project Abstract/Summary:**

Whiskey distillation has a long tradition in Kentucky. Many early settlers brought copper stills into Kentucky and set up their apparatus wherever they established a homestead. Whiskey distillation provided significant value added through conversion of a bulky, low value crop such as corn into a compact, easily transportable and valuable commodity for export. Imposition of nationwide prohibition promoted widespread illegal distillation in the early 20<sup>th</sup> century. Small-scale production continued in the form of illegal "moonshine" stills hidden away in remote areas of the state. The only systematic survey of historic illegal still sites was conducted by archeologists for the Daniel Boone National Forest in association with the USFS Heritage program. Information so gathered was not subjected to analysis until, during 2012-13, the investigator examined all DBNF site reports and was able to identify 107 locations representing former illegal stills. Most sites were located within natural concavities in sandstone cliffs (rock shelters) and many artifacts display axe marks and other indications of intervention by law enforcement. For some sites, historic period of distillation can be determined by associated artifacts. The detailed information on these reports has allowed an analysis of the nature, distribution, and significance of this clandestine Kentucky industry. William Parker has been associated with this project from the beginning for about 2 years, first as an Honors student and recently as a fellowship recipient. The project was conducted in three phases. The earliest phase was "data mining" the archaeological reports of the USFS, carried out by Mr. Parker. He next conducted a literature review with annotations. Thirdly, during his recent fellowship, he has analyzed the data collected and written a draft paper for potential publication (following my own revisions and contributions), as well as creating a poster for presentation at several academic venues.

**Project Dissemination:**

**Poster Presentations:**

Parker, William T. and O'Dell, Gary A. (2014). Historic "Moonshine" Distilling Sites in the Daniel Boone National Forest, Posters-at-the-Capitol, Frankfort, KY, February.

Parker, William T. and O'Dell, Gary A. (2014). Historic "Moonshine" Distilling Sites in the Daniel Boone National Forest, Fifth Annual University of Kentucky Appalachian Research Community Symposium and Arts Showcase, Lexington, KY, March.

Parker, William T. and O'Dell, Gary A. (2014). Historic "Moonshine" Distilling Sites in the Daniel Boone National Forest, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

The student has been accepted into the law program at the University of Kentucky.

## ***DEPARTMENT OF MUSIC, THEATRE, AND DANCE***

### **Dalton, Wesley**

**Major:**

Music Education

**Faculty Mentor:**

Brian Mason

**Research/Project Title:**

Selected Percussion Works of John Cage, Lou Harrison, and Henry Cowell and Their Importance in Early 20<sup>th</sup> Century Percussion Repertoire

**Project Abstract/Summary:**

This research will focus on how the percussion works of John Cage, Lou Harrison, and Henry Cowell reflected the advancement of percussion in the early 1900s as well as the influence of the percussion writing of their contemporaries. Percussion compositions written between 1925 and 1945 will be analyzed to identify factors that led to the compositional decisions made by the previously stated composers.

**Project Dissemination:****Presentation:**

Oral presentation for Morehead State University Percussion Studio, January, 2014.

Oral Presentation for Students at Russell Independent High School, January, 2014.

Possible article submission for Percussive Notes and Undergraduate Research Journals.

Will apply for the Celebration of Student Scholarship at Morehead State University.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Students future career plans include becoming a music educator. In addition to teaching, he also plan to privately research more about the topic area and eventually apply for graduate school.

**Dixon, Adam****Major:**

Music Education

**Faculty Mentor:**

Susan Creasap

**Research/Project Title:**

A Trombonist's Approach to Teaching Trombone

**Project Abstract/Summary:**

The trombone is completely different than any other instrument found in the concert band. Unlike other brass instruments that have rotary or piston valves, the trombone is unique in that the movement of a slide determines pitch. Because of this, the trombone presents exclusive challenges not found in other instruments. Individuals who go into the music education field are required to take courses that teach them how to play each instrument, including the trombone. However, these courses are often brief and don't get into specific instruction on how to overcome challenges that come with playing an instrument. Music educators who are not familiar with trombone do not have the time to devote to learning the instrument, and current resources on how to teach trombone simply instructs the reader how to play the instrument, not actually teach it. Teachers need a guide that not only teaches them how to play the trombone, but rather how to teach the trombone. This project will yield an in depth explanation on how to teach the trombone; not just play it. It will also cover topics of interest for future music educators, such as how to hold the trombone, how to properly maintain the trombone, mute and valve selections, oils and creams, and much more.

The data gathered from this research has been printed in a book that can be used by current and future music teachers for in-depth information about the trombone. The methods and materials in the book have already benefited students who are learning the trombone. Although the book has several different teaching methods for each segment, it will need a wider variety of learning strategies to better accommodate for all types of learners before being released to the music teacher.

**Project Dissemination:****Publication:**

Dixon, Adam L. (2014). A Trombonist's Approach to Teaching Trombone. Ashland: n.p.

**Poster Presentation:**

Dixon, Adam L. (2014). A Trombonist's Approach to Teaching Trombone, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

The student has been accepted into the Master of Music program in performance at Arizona State University.

## **Malone, Kyle**

### **Major:**

Music Performance

### **Faculty Mentor:**

Matthew Taylor

### **Research/Project Title:**

The Real Standard Repertoire: Identifying Commonly Assigned Musical Works among Undergraduate Saxophonists

### **Project Abstract/Summary:**

Each year, saxophone professors assign various etudes and musical works to their students. As yet, there has not been significant research into the prevalence of these assigned works; common knowledge would dictate that certain pieces would be more commonly assigned than others. This study aims to identify and quantify these frequently assigned works, suggest possible causes for those patterns, and provide a list of works/composers that have been assigned in a statistically significant number of undergraduate college and university teaching studios in the past year.

The research will culminate in presentations at regional/national/international conferences, with potential publication in the Saxophone Symposium and other relevant journals and periodicals.

The data collected has numerous applications beyond the initial study, including but not limited to the exploration of commonly assigned repertoire among graduate students, studios outside the United States, and initial inquiry to the feasibility of the creation of an electronic network that would ease collaboration among college-aged musicians.

### **Project Dissemination:**

#### **Presentation:**

In Process

### **Awards and/or Honors:**

N/A.

### **Post-Graduation Plans (Seniors only):**

The student will attend graduate school at Stephen F. Austin University as a music performance master's student.

## **Morris, Julie**

### **Major:**

Music Performance

### **Faculty Mentor:**

Jennifer Brimson

### **Research/Project Title:**

Extended Techniques for the Flute: A Guide for the Student Flutist

### **Project Abstract/Summary:**

This study uses significant sources in flute literature to examine extended techniques for the instrument. Linda L. Holland's series, "Easing Into Extended Technique," and Robert Dick's performance manuals "The Other Flute" and "Tone Development Through Extended Techniques" can be used to study singing and playing harmonics, pitch bends, finger slides, multiphonics, and microtones. This study focuses on providing an introductory guide to extended techniques, how to practice and teach the techniques to student-learners, as well as assimilate works and composers which employ each technique. Works to be studied include Elizabeth Brown, Trillum, Ian Clarke, The Great Train Race, and Within: R. Murray Schafer, Concerto for Flute and Orchestra. The study is designed in mind with the student flutist: to provide a guide to better understand and incorporate extended techniques for the flute. This research was supported by a Morehead State University Undergraduate Research Fellowship.

### **Project Dissemination:**

#### **Poster Presentation:**

Morris, Julie and Jennifer Brimson Cooper (2014). Extended Techniques for the Flute: A Guide for the Student Flutist, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

#### **Oral Presentation:**

Morris, Julie and Jennifer Brimson Cooper (2013). Warming Up with Extended Technique, Kentucky All-State Flute Day, Morehead, KY, October.

#### **Performances:**

Morris, Julie and Jennifer Brimson Cooper (2014). Soloist in Ian Clarke's "Within," Student Recital, Morehead, KY, March.

Morris, Julie and Jennifer Brimson Cooper (2014). Soloist in Ian Clarke's "Within," Central Ohio Flute Association Flute Festival, Columbus, OH, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

The student will be attending Longy School of Music in Boston, MA, for graduate studies in flute performance in the fall 2014. She has been awarded not only a performance-based Conservatory Scholarship, but also interviewed and received an Education Assistantship – these amounts to \$12,500 per year. Ms. Morris aspires to become a professional flutist with hopes of performing in a major orchestra.

**Rivers, Joseph****Major:**

Music Education

**Faculty Mentor:**

June Grice

**Research/Project Title:**

The Integration of Arts and Literacy Using Three Modes of Learning: Oral, Visual, and Kinesthetic

**Project Abstract/Summary:**

The Haldeman After School Program provides various arts-based activities, including music, visual art, drama, and foreign language, four days a week to children between the ages of kindergarten and fifth grade. These children come from diverse backgrounds in regards to their family and home life, social abilities, and overall self-esteem. The purpose of this study was to discover if one particular method of learning (oral, visual, or kinesthetic) was more appealing and successful in teaching life lessons through the integrations of music and children's literature. The results showed that adding music and kinesthetic activities to literature added to the enjoyment of tasks relating to literature. Detailed graphs represented the differences that these variables contributed to student employment of literature and self-esteem. This research was supported in part by the MSU Honors Scholarship.

**Project Dissemination:****Poster Presentation:**

Rivers, J.T. and Grice, J.M., (2014). The Integration of Arts and Literacy Using Three Modes of Learning: Oral, Visual, and Kinesthetic, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Presentation:**

On 2 state panels to discuss the Haldeman After School Program: one in Huntington, WV and one in Kentucky during the 2013-2014 school year. These panels included being selected as a member of a state student panel that was a part of the University of Kentucky Appalachian Research Community Symposium, March, 2014, and at the Appalachian Studies Conference, Huntington, WV, March, 2014.

**Awards and/or Honors:**

The panel discussions listed above had to be selected presentations as part of state conferences.

**Post-Graduation Plans (Seniors only):**

For student to attend Graduate School.

**Siedenberg, John****Major:**

Theatre

**Faculty Mentor:**

Denise Watkins

**Research/Project Title:**

Madrigal Feaste

**Project Abstract/Summary:**

John wrote, stage managed, and directed the Madrigal Feaste for 2013. It was, as usual, a successful event that ran for two evenings in December of 2013. There were three hundred and forty audience members in attendance at the event, and it generated \$10,200.00 in proceeds. Additionally, members of the production staff who had worked on several other Madrigal Dinners thought the event seemed to go the most smoothly it had ever gone, and many attributed that to John's organization, leadership, and direction.

**Project Dissemination:****Presentation:**

The project was performed twice in ADUC in December of 2013.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student has secured employment as the Executive Director for Kincaid Regional Theatre in Falmouth, KY.

## ***DEPARTMENT OF SOCIOLOGY, SOCIAL WORK, AND CRIMINOLOGY***

**Back, Julia****Major:**

Social Work

**Faculty Mentor:**

Lisa Shannon

**Research/Project Title:**

Understanding Client Needs: Findings from a Gateway Community Action Council Needs Assessment

**Project Abstract/Summary:**

This collaborative project with Gateway Community Action Council sought to identify resource disparities and aid 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 792 clients who lived in one of the designated Gateway Area counties and filled out the needs assessment survey. The factors of age, income, gender, race, and material 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 45.42 years old. Over half of the population (54.4%) reported an income less than \$10,000 per year. The greatest number of participants were female (73.1%) and Caucasian (95.4%). Over one-third (35.2%) of the population were married and a little over one-fourth resided in Morgan County (26.7%). When broken down the most selected needs were emergency services (37.7%). This research was supported by a MSU Undergraduate Research Fellowship and will provide valuable information regarding the services provided by the Gateway Community Action Council and will have implications for providing much needed services to individuals in the region.

**Project Dissemination:****Poster Presentation:**

Julia Back and Lisa Shannon (2014). Understanding Client Needs: Findings from a Gateway Community Action Council Needs Assessment, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Holmes, Marilyn****Major:**

Art/Psychology

**Faculty Mentor:**

Elizabeth Perkins

**Research/Project Title:**

The Different Facets of Art Therapy/Art Psychotherapy and Their Effectiveness

**Abstract/Summary:**

Art therapy and art psychotherapy are two growing practices in greater cognitive therapy whose effectiveness has long been reduced to treating children. However, the recent years have found that Art Therapy can serve a larger variety of people. The purpose of this project is to further analyze the multiple facets of art therapy/psychotherapy and their effectiveness in a clinical and creative setting. We found an extensive history and records of Art Therapy's effectiveness with several different core groups. This project is supported by a Morehead State University Undergraduate Research Fellowship.

**Project Dissemination:****Poster Presentation:**

Holmes, Marilyn and Perkins, Elizabeth (2014). The Different Facets of Art Therapy/Art Psychotherapy and Their Effectiveness, 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/International Studies

**Faculty Mentor:**

Elizabeth Perkins

**Research/Project Title:**

Contemporary Pornography in America

**Project Abstract/Summary:**

The pornography sector of the sex industry has evolved rapidly with the creation of new technology. It is now more accessible and plentiful – for both those who want and do not want to consume it – than ever before. New levels are pursued by pornography creators to draw in audiences who seek to push the limit to more extreme content. Pornography affects more than just its traditional consumers, however. The media has become increasingly filled with sexualized content, much of which can easily be considered soft-core pornography. A look into mainstream pornography itself shows common themes which are not only degrading and violent – typically towards women – but also promoting unsafe health standards by which to express sexuality both physically and mentally. As trends in mainstream pornography move to commercials, movies, television and more, these unsafe and unhealthy sexual behaviors are normalized and woven in to everyday life. Implications of such normalization of unhealthy behavior are vast for both men and women; however the topic of pornography is stigmatized by a complex cultural veil and is rarely openly discussed. The discussion must begin for these issues to be addressed.

**Project Dissemination:****Poster Presentation:**

Jacques, D. and Perkins, E. (2014). Contemporary Pornography in America, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Presentation:**

Jacques, D. and Perkins, E. (2014). Contemporary Pornography in America, Topic Presentation, National Sociologists for Women in Society, Winter Meeting, Nashville, TN.

**Awards and/or Honors:**

2014 Celebration of Student Scholarship Poster Merit Award.

2014 Celebration of Student Scholarship People's Choice Award.

**Post-Graduation Plans (Seniors only):**

N/A

**Mabry, Hannah****Major:**

Sociology

**Faculty 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:****Presentation:**

Mabry, Hannah (2014). Exotic Dancing in 2013: Raunch Culture, the Economy, and Technology, National Conference on Undergraduate Research, Lexington, KY, April.

Mabry, Hannah (2014). Exotic Dancing in 2013: Raunch Culture, the Economy, and Technology, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Fall tuition scholarship (\$500) from the American Association of University Women (AAUW).

**Post-Graduation Plans (Seniors only):**

N/A

**McIntosh, Sharon****Major:**

Criminology

**Faculty Mentor:**

Rebecca Katz

**Research/Project Title:**

Exploring the Social Construction of Gender in White Supremacist Literature

**Project Abstract/Summary:**

This work analyzed and contrasted prevalent themes across one piece of historical literature of the KKK to current Tumblr posts. Findings illustrate that gender remains socially constructed in rigid traditional ways that promulgate women as mothers of the "white only" race while men's roles as warrior or protector of the family and country remain present. Moreover, the KKK book promotes homosocial male bonding through a variety of sacred rituals demonstrating its exclusionary membership as white only and male only.

**Project Dissemination:****Presentation:**

The student is scheduled to present a paper with her mentor Dr. Katz, in November at the Annual American Society of Criminology meeting. The student also completed a poster this last April during the Celebration of Student Scholarship at Morehead State University, Morehead, KY, in April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Willis, Hannah****Major:**

Criminology

**Faculty Mentor:**

Rebecca Katz

**Research/Project Title:**

Examining the Intergenerational Performance of Masculinity and Criminal Behavior

**Project Abstract/Summary:**

Twenty qualitative life story interviews with incarcerated men revealed most men's early childhoods were characterized by physical or sexual abuse and or exposure to intimate partner violence in their family of origin. Utilizing ground theory analysis the data revealed support for social learning theory and developmental theories of crime. These men exhibited little ability to demonstrate empathy but recognized the futility of their life course and desired to improve themselves in the future and desist from their criminal lifestyles. Finally, many men were also involved in substance abuse as were many of their fathers or mothers. While vocalizing a desire to forge separate pathways than their own fathers, many of the men replicated the deviant lifestyles of their fathers. The children of these men were not significant parts of their life narratives, but rather signifiers of their status as were their multiple relationships with multiple women resulting in several children by separate women. We argue that the dysfunctional lifestyles of these men necessitate treatment rather than incarceration.

**Project Dissemination:****Presentation:**

The student presented the last three years at the annual American Society of Criminology. We currently have an article we are working on based upon a revised and re-submit.

**Awards and/or Honors:**

Student won a significant achievement last year during the Celebration of Student Scholarship and presented again this year.

**Post-Graduation Plans (Seniors only):**

The student will be pursuing work with offenders in a half-way house or treatment center. In the future, she plans to attend graduate school to pursue a Master's degree in Clinical Psychology.

**COLLEGE OF EDUCATION****21<sup>ST</sup> CENTURY EDUCATION ENTERPRISE****Brewington, Megan****Major:**

Elementary Education

**Faculty Mentor:**

John Curry

**Research/Project Title:**

Following Trends in Student Perceptions of Mason County 1:1 iPad Implementation

**Project Abstract/Summary:**

Last Year, Mason County High School, located in Maysville, KY, launched a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. 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 both this year and last year. The data point included examines trends in student perceptions from the 1:1 iPad implementation that took place last year, specifically following the perceptions of sophomores, juniors, and seniors. This research is sponsored by Morehead State University's College of Education through the Undergraduate Research Fellowship Program.

**Project Dissemination:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student is working on getting a teaching job.

**Kallas, Maria****Major:**

Elementary Education/Special Education

**Faculty Mentor:**

John Curry

**Research/Project Title:**

Following Trends in Student Perceptions of Mason County 1:1 iPad Implementation

**Project Abstract/Summary:**

Last year, Mason County High School, located in Maysville, KY, launched a 1:1 iPad implementation. All faculty, staff, and students were given iPads to use for both school and personal use. 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 both this year and last year. The data point included examines trends in student perceptions from the 1:1 iPad implementation that took place last year, specifically following the perceptions of sophomores, juniors, and seniors. This research is sponsored by Morehead State University's College of Education through the Undergraduate Research Fellowship Program.

**Project Dissemination:****Poster Presentation:**

Kallas, M. & Curry, J.H. (2014). Trends in Student Perceptions of Mason County's 1:1 iPad Implementation, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Oral Presentation:**

Curry, J.H., Nelson, J.K., Kallas, M. and Belcher, K. (2014). Year Two: The Effect of 1:1 iPad Implementation on Student Motivation and Engagement, Annual Conference of the Association for Educational Communications and Technology, Jacksonville, FL.

**Awards and/or Honors:**

Award of Merit, Celebration of Student Scholarship, Poster Presentation, April, 2014.

**Post-Graduation Plans (Seniors only):**

N/A

## ***DEPARTMENT OF EARLY CHILDHOOD, ELEMENTARY, AND SPECIAL EDUCATION***

### **Bryant, Lisa**

**Major:**

Early Elementary (P-5)

**Faculty Mentor:**

Mee-Ryoung Shon

**Research/Project Title:**

Teaching Diversity with Multicultural Folktales

**Project Abstract/Summary:**

Cultural diversity in the classroom prepares students for an increasingly multifarious world. Folktales allow students to learn traditions, values, and beliefs of people that are divergent of their own, resulting in broader understanding, acceptance, and a stronger embrace for diversity. An advanced reading group of 4<sup>th</sup> and 5<sup>th</sup> graders from Carter County, KY, completed a 6-day diversity unit with three different "Cinderella" stories; The Korean Cinderella and The Egyptian Cinderella, both by Shirley Climo, and Mufaro's Beautiful Daughters by John Steptoe. The students explored the cultures represented and analyzed their own eastern Kentucky culture for comparison, culminating, the unit by creating their own story: The Eastern Kentucky Cinderella. Individual story analysis; small group graphic organizers, narrative writing, and presentations; and whole group discussions were utilized in this cultural investigation. This research project was funded by an Undergraduate Research Fellowship from Morehead State University.

**Project Dissemination:****Poster Presentation:**

Montgomery, L. and Shon, M. (2012). Analysis of Authentic Korean vs. Euro-American Versions of the "Cinderella" Folktale by Gifted Students in Grades 4 and 5, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Montgomery, L. and Shon, M. (2013). Teaching Diversity with Multicultural Folktales, Kentucky Engagement Conference, Richmond, KY.

Montgomery, L. and Shon, M. (2014). Teaching Diversity with Multicultural Folktales, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Received a Merit Award for Research at the Morehead State University Celebration of Student Scholarship 2013.

**Post-Graduation Plans (Seniors only):**

N/A

### **Chalk, Katarina**

**Major:**

P-5 Education

**Faculty Mentor:**

Kim Nettleton

**Research/Project Title:**

Films in History

**Project Abstract/Summary:**

Imagine waking up one morning and having to get dressed in your Sunday best for a school day. Your teachers told you that a man would be visiting your school who was to film your classroom, recess, even you eating lunch. Now imagine having to walk two miles in that outfit, just to get to your bus stop. This is what students in a rural eastern Kentucky county had to do in the early 1940s. The Board of Education asked a local historian and radio show host to visit to local schools in the County; the consolidated schools of nearby towns and some of the one-room schools planted in the small farming communities around the county. Whatever the purpose behind the films, they provide a legacy to future generations. Even without sound, the faded images of bygone days in the country schoolhouse have recorded the everyday life of students in a way that mere words could never convey.

**Project Dissemination:****Presentation:**

The student presented the actual film and research at the 2013 Celebration of Student Scholarship. During the fall, she worked on turning it into an article. She explained the literature review, but she never completed the project.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Clausen, Amy****Major:**

P-5 & MSD Special Education

**Faculty Mentor:**

Sarah Hawkins-Lear

**Research/Project Title:**

The Attitudes of Pre-service Physical Education Teachers toward Teaching Individuals with Disabilities

**Project Abstract/Summary:**

Pre-service physical education students taking an adaptive physical education class at the university will be given a survey before and after their clinical begins. The clinical involves teaching adapted physical education to students with disabilities from the local school district. The survey addresses the pre-service teachers' feelings on teaching students with disabilities, including them with students without disabilities, and their perceived level of training. This survey will be administered prior to the clinical and at the end of the clinical. Researchers will compile the data to determine the effectiveness of a pre-service adapted physical education class on pre-service teachers' feelings towards students with disabilities. The results indicated that students either decreased in their positive feelings towards inclusions, or increased only slightly after the clinical course.

**Project Dissemination:****Poster Presentations:**

Clausen, A.M. and Hawkins-Lear, S. (2013). The Attitudes of Pre-service Physical Education Teachers Toward Teaching Individuals with Disabilities, Tash International Conference, Chicago, IL.

Clausen, A.M. and Hawkins-Lear, S. (2014). The Attitudes of Pre-service Physical Education Teachers Toward Teaching Individuals with Disabilities, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

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

**Post-Graduation Plans (Seniors only):**

Student is applying for teaching positions in the field of special education.

**Geiman, Laura****Major:**

Education

**Faculty Mentor:**

Mattie Decker

**Research/Project Title:**

Universal Design for Learning (UDL): A Continuation

**Project Abstract/Summary:**

This project will be a culmination of two years work examining the effects of study and implementation of the principles of Universal Design for Learning. This second phase, while continuing the review of current literature, will include several products:

Possible Application of Research:

- Creating the UDL Lesson Plan
- Creating a presentation for students and for conference presentations
- Writing a position paper “why UDL is important”
- Writing and publishing a review of the literature on UDL

**Project Dissemination:****Presentations:**

Paper publication in an Educational journal; poster presentation or oral presentation at state, national or international conferences.

**Awards and/or Honors:**

Certificate of Achievement: Oral presentation at the National Conference on Undergraduate Research (NCUR) “The Application of Universal Design for Learning (UDL) in an Early Literacy Study.”

College of Education Recognition of Undergraduate Research.

**Post-Graduation Plans (Seniors only):**

N/A

**Horton, Margaret****Major:**

P-5 & LBD

**Faculty Mentor:**

Mee-Ryoung Shon

**Research/Project Title:**

Preschool Children’s Fine Motor Development Through Origami Paper Folding

**Project Abstract/Summary:**

Previously, a similar study was conducted at a Rowan county kindergarten class, which enhanced children’s understanding on math language through the use of bodily-kinesthetic, spatial, and logical-mathematical intelligences. The purpose of this project is to investigate if origami paper folding enhances preschool children’s fine motor development, one of the Early Childhood Standards. Children perform fine motor tasks using eye-hand coordination. Each week, a class at Rowan County preschool was introduced to a new origami activity. This activity is accompanied with a poster board with step-by-step written instructions and 3-D examples as visual cues for children to follow. The children are assessed on their ability to make folds, creases, and fold the paper in half on a scale of 0-3 with anecdotal notes. The results demonstrated increased fine-motor skills as well as increased understanding on math language (direction, sequence, position, size/shape), which encounters one of the Math Early Childhood Standards, Benchmark 1.2 recognizes and describes shapes and spatial relations.

We discovered that over a 7 week period over half of the class began using the small fine motor movements with origami paper folding with expertise; the students went from a scale of 1 to 3 over this time. Through teacher notes and comments we also discovered that the students began using new vocabulary such as FOLD and CREASE. The students also began classifying colors as light or dark because of their choices of Origami paper (ex. light blue or dark blue). For this research I received an award of Merit at the Celebration of Student Scholarship this semester for giving an oral presentation of the data collected.

**Project Dissemination:****Oral Presentation:**

H. Travis, M. Horton and M. Shon (2014). Preschool Children’s Fine Motor Development through Origami Paper Folding, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

## **Quitoriano, Denise**

### **Major:**

IECE

### **Faculty Mentor:**

Mee-Ryoung Shon

### **Research/Project Title:**

Paper Folding Activities for Young Children/Origami/Early Education Benefits

### **Project Abstract/Summary:**

Although much research has been conducted on the mathematical benefits of origami, it has primarily focused on older children. In Japan, children as young as three years are able to do origami due to the cultural differences. There are many benefits to introducing young children to origami. Origami can address developmental areas across many domains as well as be connected with the core teaching standards. Depending on children's developmental level, teachers can begin with paper exploration activities that lead into origami paper folding. Research consisted of developmental domains and application to origami paper folding. Kentucky Early Childhood Standards Connections were reviewed and the connections applicable to this research have been cited in our presentation.

### **Project Dissemination:**

#### **Presentation:**

Mee-Ryoung Shon, D. Quitoriano and E. Shin (2013). Paper Folding Activities for Young Children and It's Developmental Areas, Kentucky Association for Early Childhood Education 2013 Conference, Florence, KY, October.

### **Awards and/or Honors:**

N/A.

### **Post-Graduation Plans (Seniors only):**

N/A

## **Travis, Heather**

### **Major:**

Interdisciplinary Early Childhood Education

### **Faculty Mentor:**

Mee-Ryoung Shon

### **Research/Project Title:**

Preschool Children's Fine Motor Development through Origami Paper Folding

### **Project Abstract/Summary:**

Previously, a similar study was conducted at a Rowan county kindergarten class, which enhanced children's understanding on math language through the use of bodily-kinesthetic, spatial, and logical-mathematical intelligences. The purpose of this project is to investigate if origami paper folding enhances preschool children's fine motor development, one of the Early Childhood Standards. Children perform fine motor tasks using eye-hand coordination. Each week, a class at Rowan County preschool children was introduced to a new origami activity. This activity is accompanied with a poster board with step-by-step written instructions and 3-D examples as visual cues for children to follow. The children are assessed on their ability to make folds, creases, and fold the paper in half on a scale of 0-3 with anecdotal notes. The result demonstrated increased fine-motor skills as well as increased understanding on math language (direction, sequence, position, size/shape), which encounters one of the Math Early Childhood Standards, Benchmark 1.2 "Recognizes and describes shapes and spatial relations."

We discovered that over a 7 week period over half of the class began using the small fine motor movements with origami paper folding with expertise; the students went from a scale of 1 to 3 over this time. Through teacher notes and comments we also discovered that the students began using new vocabulary such as FOLD and CREASE. The students also began classifying colors as light or dark because of their choices of Origami paper (ex. light blue or dark blue). For this research I received an award of Merit at the Celebration of Student Scholarship this semester for giving an oral presentation of the data collected.

### **Project Dissemination:**

#### **Oral Presentation:**

H. Travis, M. Horton and M. Shon. (2014). Preschool Children's Fine Motor Development Through Origami Paper Folding, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

### **Awards and/or Honors:**

Award of Merit at the Celebration of Student Scholarship for an oral presentation.

### **Post-Graduation Plans (Seniors only):**

Student will attend Graduate School while pursuing a teaching career in Early Childhood; mainly preschool.

## **DEPARTMENT OF MIDDLE GRADES AND SECONDARY EDUCATION**

### **Bender, Rachel**

**Major:**

Middle Grades Education

**Faculty Mentor:**

Kimberlee Sharp

**Research/Project Title:**

The Pedagogical Benefits of Using Controversial Song Lyrics to Teach Social Studies

**Project Abstract/Summary:**

The purpose of this project is to examine the contemporary relevancy of the seminal work by Hunt and Metcalf (1968), the 7 Problematic Areas of Culture that are addressed in the social studies curriculum. These historically grounded themes are often portrayed as social commentary in the arts; specifically, in song lyrics. Teachers will learn how to select developmentally and content appropriate songs in which the lyrics speak to one or more of the 7 Problematic Areas of Culture. Using this model as the lens through which to analyze, write about, and debate social issues, the presenters will show how the Common Core Standards of History/Social Studies are addressed in ways responsive to students' interest and needs.

**Project Dissemination:**

**Poster Presentation:**

Bender, R.A. and Sharp, K.A. (2013). Reading and Listening with Purpose: Controversial Lyrics and the Common Core, National Council for the Social Studies (NCSS) Annual Conference, St. Louis, MO.

**Awards and/or Honors:**

Outstanding Student in Middle Grades Education, April, 2014.

**Post-Graduation Plans (Seniors only):**

The student plans to teach full-time in either middle grades Social Studies or Science, Fall, 2014.

### **Bodenlos, Emily**

**Major:**

P-5 Education

**Faculty Mentor:**

Lesia Lennex

**Research/Project Title:**

3D in Schools

**Project Abstract/Summary:**

Action research with 3D iPad apps in 4<sup>th</sup> grade science, social studies, and language arts instruction involving the curriculum construction, delivery, and analysis of learning is intended for 2012-2013. Two MSU grants have funded for the 2012-2013 calendar year iPads and science professional development for fourth grade teachers at Rodburn Elementary School, Rowan County, KY. We also worked with physical sciences 4<sup>th</sup> grade teachers at McBrayer Elementary in Spring 2013. The results of the research demonstrates that the use of 3D apps is promising for increasing achievement and transfer of knowledge. Apps used are under analysis as are transcripts of the actual classroom lessons and use of the apps.

**Project Dissemination:**

**Book Chapters:**

Bodenlos, E. and Lennex, L. (2013). 3D Science and Social Studies in Grades 5-6: Virtualization Expanding Instruction, In Dr. Kimberly Nettleton & Dr. Lesia Lennex (Ed.), Cases of 3D Technology Application and Integration in Education. (pp.tba). Hershey, PA: IGI Global.

Spencer, K., Lennex, L. and Bodenlos, E. (2013). 3D Technology in P12 Education: Cameras, Editing, and Apps. In Dr. Kimberly Nettleton & Dr. Lesia Lennex (Ed), Cases on 3D Technology Application and Integration in Education. (pp.tba). Hershey, PA: IGI Global.

**Grants:**

Lennex, L. and Bodenlos, E. (2012). 3D in Schools. Research and Sponsored Programs, Morehead State University.

Lennex, L. and Bodenlos, E. (2012). 3D Technology Advancing Curriculum and Learning Achievements of Fourth Graders. Center for Regional Engagement.

**Presentations:**

Lennox, L. and Bodenlos, E. (2013). 3D Apps in Fourth Grade Curriculum, Society for Information Technology and Teacher Education (SITE), March, 2013, New Orleans, LA. Dr Lennox presented; Bodenlos co-wrote proposal and proceedings. International meeting.

Bodenlos, E. (2012). iPad Apps in the Elementary School Classroom, Mid-South Research Association (MSERA), November, 2012, Lexington, KY. Regional meeting.

Bodenlos, E. and Lennox, L. (2012). Curriculum Building for 3D in the P12 Classroom, International Society for Technology Education (ISTE), June, 2012, San Diego, CA. International meeting.

**Poster Presentations:**

Bodenlos, E. and Lennox, L. (2013). Using iPad Apps to Support Curriculum in Fourth Grade, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Bodenlos, E. (2012). 3D Technology: Changing the Way Student Learn, Mid-South Research Association (MSERA), November, 2012, Lexington, KY. Regional meeting.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

## **COLLEGE OF SCIENCE AND TECHNOLOGY**

### ***DEPARTMENT OF AGRICULTURAL SCIENCES***

**Bredar, Garrett****Major:**

Veterinary Science

**Faculty Mentor:**

David Smith

**Research/Project Title:**

The Toxicity of Ivermectin to Ceriodaphnia Dubia

**Project Abstract/Summary:**

Ivermectin is a widely used drug used to treat parasites in livestock. Ceriodaphnia dubia are sensitive freshwater invertebrates used routinely in aquatic toxicity testing to indicate potential risk to aquatic ecosystems. Studies indicate that small amounts of this drug, if introduced to water sources, could potentially cause harm to aquatic organisms. Ceriodaphnia dubia in particular are very sensitive to the introduction of Ivermectin into their environment. 72-hour toxicity tests were conducted to determine the concentration of Ivermectin that causes harm to Ceriodaphnia dubia and thus potential harm to other aquatic species. Results suggest that if administered incorrectly, Ivermectin introduced to aquatic ecosystems can have lethal results. Careful regulation on the usage and administration of Ivermectin should be used when treating livestock with the anti-parasite drug.

**Project Dissemination:****Poster Presentation:**

Garrett Bredar and David P. Smith (2014). The Toxicity of Ivermectin on Ceriodaphnia Dubia, 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 APPLIED ENGINEERING AND TECHNOLOGY***

**Greene, Andrew****Major:**

Engineering Management

**Faculty Mentor:**

Hans Chapman

**Research/Project Title:**

Enhancing the Solar Resource Database in Eastern Kentucky/Assessment of the Solar Energy Variability and Effects in Eastern Kentucky

**Project Abstract/Summary:**

With the increasing impact of renewable energy technologies on modern installations, buildings, and appliances, more emphasis is being placed on research in solar/photovoltaic systems. This research project is focused on enhancing the solar radiation resources for the Eastern Kentucky region.

In this current stage of the research, solar data, particularly, solar radiance, ambient temperature, and wind speed were collected with equipment stationed at the Kentucky Mesonet Station in Morehead, KY.

The correlation between the atmospheric factors were analyzed with MINITAB software. While the data showed a positive correlation between solar irradiance and ambient temperature, wind speed did not have a direct correlation with solar irradiance. This finding supports similar studies in the literature, performed at other global locations.

The next stage of the research will involve direct measurements of solar irradiance on photovoltaic modules to be placed at specific locations on the main campus of Morehead State University. It is envisaged that the level of variability posed by point measurements will be useful in developing a regression model to be utilized for location-specific solar data. The overall project has benefits for potential investors and companies that are interested in solar technologies in the Eastern Kentucky region.

**Project Dissemination:****Poster Presentation:**

Schneider, Z., Green, A. and Chapman, H. (2014). Assesment of the Solar Energy Variability and Effects in Eastern Kentucky. Posters-at-the-Capitol, Frankfort, KY, February, 2014.

Schneider, Z., Green, A. and Chapman, H. (2014). Assesment of the Solar Energy Variability and Effects in Eastern Kentucky. Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2014.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

N/A

**Schneider, Zachary****Major:**

Design and Manufacturing Engineering

**Faculty Mentor:**

Hans Chapman

**Research/Project Title:**

Enhancing the Solar Resource Database in Eastern Kentucky/Assessment of the Solar Energy Variability and Effects in Eastern Kentucky

**Project Abstract/Summary:**

With the increasing impact of renewable energy technologies on modern installations, buildings, and appliances, more emphasis is being placed on research in solar/photovoltaic systems. This research project is focused on enhancing the solar radiation resources for the Eastern Kentucky region.

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**Project Dissemination:****Poster Presentations:**

Schneider, Z., Green, A. and Chapman, H. (2014). Assesment of the Solar Energy Variability and Effects in Eastern Kentucky, Posters-at-the-Capitol, Frankfort, KY, February.

Schneider, Z., Green, A. and Chapman, H. (2014). Assessment of the Solar Energy Variability and Effects in Eastern Kentucky, 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 BIOLOGY AND CHEMISTRY***

**Brough, Hannah**

**Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

Approaches to Measuring Beetle Diversity Among Three Sites

**Project Abstract/Summary:**

Regardless of size, all species have a relative part in enhancing the biodiversity of the ecosystem. Therefore, biodiversity is an important reflection of the magnitude of conservation in a given area. The most diverse group of organisms in the world is insects, specifically beetles, which comprise over 90,000 species in the United States. Diversity is reflected in their abundance, availability, and numerous ecological functions. For the purposes of this study, biodiversity measurements were derived from the Simpson and Shannon indices, Kruskal-Wallis statistical test, and quantitative comparison of functional feeding groups. These methodologies 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 and serves as the control of the study. This study was supported in part by the Undergraduate Research Fellowship program, and in part by the Department of Biology and Chemistry at Morehead State University.

**Project Dissemination:**

**Poster Presentation:**

Brough, Hannah and Sean O'Keefe (2014). Approaches to Measuring Beetle Diversity Among Three Sites, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

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

**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 One: Papilionidea and Pieridae

**Project Abstract/Summary:**

According to Charles Covell's 1999 *The Butterflies and Moths (Lepidoptera) of Kentucky: An Annotated Checklist and its three supplements (2000, 2006, 2008)*, there are 2,493 species of Lepidoptera (butterflies, moths, and skippers) known from Kentucky, with 563 of these occurring in Rowan County. Our project updates Covell's records from Rowan County via new data from the current Lepidoptera collections of Morehead State University, University of Kentucky, and private collectors. We also provide an overview to each family and each species within the order Lepidoptera. This poster shows the first part of our biodiversity survey and includes an introduction to superfamily Papilionoidea (butterflies) and a caterpillar-through-adult guide to Rowan County's 5 swallowtails (family Papilionidae), 4 whites and sulphurs (family Pieridae), and 7 harvesters, coppers, hairstreaks, and blues (family Lycaenidae). Information about their host plants, seasonality, sexual dimorphism, and global, USA, and Kentucky biodiversity is also provided. No new county records have been found for these families, but over 200 new county records of moths have been discovered. This project was partially funded by the Department of Biology and Chemistry.

**Project Dissemination:****Poster Presentation:**

Brown, Rachel and Sean O'Keefe (2014). Biodiversity of Lepidoptera in Rowan County, Kentucky, Part One: Papilionoidea and Pieridae, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Davis, Adam****Major:**

Biology

**Faculty Mentor:**

Doug Dennis

**Research/Project Title:**

Atomic Force Microscopy of Novel Bacterial Lysis Products

**Project Abstract/Summary:**

In the course of an experiment, we determined that novel spiral structures could be generated using an EDTA-mediated lysis technique. The purpose of the student's experimentation was to use AFM to characterize these structures.

**Project Dissemination:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student is applying to medical school.

**Davis, Harley****Major:**

Biomedical Science

**Faculty Mentor:**

Kurt 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 (Givvs & 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 suggested 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 data to guide additional experiments intended to elucidate the functional significance of *Socs2* in recovery from CNS injury.

**Project Dissemination:****Presentation:**

Davis, Harley and Dr. Kurt Gibbs (2014). Quantification of *Socs2* mRNA Expression and Cell Type Identification in *Xenopus Laevis* After Spinal Cord Injury, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Eckstein, Meredith****Major:**

Biomedical Research

**Faculty Mentor:**

David Peyton

**Research/Project Title:**

1. Differential Gene Expression as a Biomarker of Contaminant Exposure
2. Molecular Manipulation of Fluorescent Proteins in *E. Coli*

**Project Abstract/Summary:**

Biomarkers are effective monitoring tools, allowing researchers to detect and understand the biological significance of contamination. We examined the expression of pollutant sensitive genes in hepatic tissue from zebrafish (*Danio rerio*) caged in either a reference area or in effluent or effluent receiving stream water emerging from the Paducah Gaseous Diffusion Plant (Paducah, KY). In addition, resident longear sunfish (*Lepomis megalotis*) and green sunfish (*Lepomis cyanellus*) were collected from both reference and effluent receiving sites for evaluation of hepatic gene expression. None of the genes examined in zebrafish had been previously identified for native sunfish species so in this project we have begun to develop a library of biomarkers for these native fish to be analyzed by real-time PCR.

During our study we characterized and sequenced the genes for longear sunfish metallothionein and glutathione-S-transferase.

**Project Dissemination:****Presentations:**

Eckstein, M.L., Kirtland, M.D., McGuire, C.V., Eisenhour, D., Peyton, D.K. and Brammell, B.F. (2014). Detection of Environmental DNA by Water Filtration and PCR Gene Amplification, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Kirtland, Marina D., Meredith Eckstein, David K. Peyton, Ben F. Brammell, Andrew J. Wigginton and Scott Lynn (2013). Gene Expression in Native Fish as a Biomarker for Contaminant Exposure, National Collegiate Honors Council Annual Conference, New Orleans, LA, November.

**Awards and/or Honors:**

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

**Post-Graduation Plans (Seniors only):**

N/A

## **Evans, Victoria**

### **Major:**

Biology

### **Faculty Mentor:**

Allen Risk

### **Research/Project Title:**

Lichen Species Inventory of Carter Caves State Resort Park, Carter County, KY

### **Project Abstract/Summary:**

Lichens are a complex symbiosis made of two components: a fungus and an organism capable of producing food, either green algae or cyanobacteria. Lichens are a vital part of forest ecosystems; those containing cyanobacteria are able to convert nitrogen in the atmosphere into usable nitrogen compounds for plants in the surrounding area. They are one of the first pioneers in a new environment, able to colonize rocks, soil, bark, and wood. The primary objective of this study was to conduct a lichen species inventory for Carter Caves State Resort Park through field work and examination of previous collections housed in the herbarium of Morehead State University. A total of 311 specimens have been collected from the park with 108 individual species identified (70 foliose lichens, 20 fruticose and 18 crustose). In order to provide a more complete lichen list for the park, additional areas will be explored during the fall semester of 2014. This research was supported by the Morehead State University Honors program and a Morehead State University Undergraduate Research Fellowship.

### **Project Dissemination:**

#### **Poster Presentation:**

Evans, Victoria, Richardson, Channing and Risk, Allen C. (2013). Lichen Species Inventory of Carter Caves State Resort Park, Carter County, KY, Kentucky Academy of Science, Morehead State University, Morehead, KY, November.

#### **Presentations:**

Evans, Victoria, Richardson, Channing and Risk, Allen C. (2013). Lichen Species Inventory of Carter Caves State Resort Park, Carter County, KY, Kentucky Honors Roundtable, Highland Heights, KY, October.

Evans, Victoria, Richardson, Channing and Risk, Allen C. (2014). Lichen Species Inventory of Carter Caves State Resort Park, Carter County, KY, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

### **Awards and/or Honors:**

N/A

### **Post-Graduation Plans (Seniors only):**

N/A

## **Gasser, Taylor**

### **Major:**

Biology/Environmental Science

### **Faculty Mentor:**

Sean O'Keefe

### **Research/Project Title:**

Review of Sampling Techniques to Assess Spider Diversity

### **Project Abstract/Summary:**

Spiders are effective tools to assess biodiversity. They are extremely diverse, abundant, occur in many types of habitats, and are relatively easy to sample. Spider diversity is featured in a number of research articles each year. The purpose of this project was to review the literature to examine the most prominent and effective techniques for sampling spiders. In reviewing articles we considered type of habitat sampled (aerial, arboreal, terrestrial, sub-terrestrial), sampling method (pitfall traps, sweep nets, litter searching, bagging, hand collection, and sticky traps), and duration of study. We reviewed over 100 articles. Of these, over 75% employed pitfall traps as a sampling technique. Only a single paper mentioned the use of pan traps. This study was supported in part by the Undergraduate Research program, and in part by the Department of Biology and Chemistry at Morehead State University.

**Project Dissemination:****Poster Presentation:**

Gasser, Taylor and Sean O'Keefe (2014). Review of Sampling Techniques to Assess Spider Diversity, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Helton, Minus****Major:**

Biomedical Science

**Faculty Mentor:**

Kurt Gibbs

**Research/Project Title:**

Quantification of miR-133b After Spinal Cord Injury in *Xenopus Laevis*

**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 after injury. qRT-PCR data for the adult frogs showed that the expression of miR-133b was higher in 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.

**Project Dissemination:****Presentation:**

Helton, Minus and Kurt Gibbs. Quantification of miR-133b After Spinal Cord Injury in *Xenopus Laevis*, 2013 Kentucky Academy of Science Annual Meeting, Morehead, KY, 2014 Celebration of Student Scholarship, Morehead State University, Morehead, KY, and 2014 Society for Developmental Biology Conference, Seattle, Washington.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Kirtland, Marina****Major:**

Biomedical Science

**Faculty Mentor:**

David Peyton

**Research/Project Title:**

1. Differential Gene Expression as a Biomarker of Contaminant Exposure
2. Molecular Manipulation of Fluorescent Proteins in *E. coli*

**Project Abstract/Summary:**

Biomarkers are effective monitoring tools, allowing researchers to detect and understand the biological significance of contamination. We examined the expression of pollutant sensitive genes in hepatic tissue from zebrafish (*Danio rerio*) caged in either a reference area or in effluent or effluent receiving stream water emerging from the Paducah Gaseous Diffusion Plant (Paducah, KY). In addition, resident longear sunfish (*Lepomis megalotis*) and green sunfish (*Lepomis cyanellus*) were collected from both reference and effluent receiving sites for evaluation of hepatic gene expression. None of the genes examined in zebrafish had been previously identified for native sunfish species so in this project we have begun to develop a library of biomarkers for these native fish to be analyzed by real-time PCR.

During our study we characterized and sequenced the genes for longear sunfish metallothionein and glutathione-S-transferase.

**Project Dissemination:****Presentations:**

Eckstein, M.L., Kirtland, M.D., McGuire, C.V., Eisenhour, D., Peyton, D.K. and Brammell, B.F. (2014). Detection of Environmental DNA by Water Filtration and PCR Gene Amplification, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Kirtland, Marina D., Meredith Eckstein, David K. Peyton, Ben F. Brammell, Andrew J. Wigginton and Scott Lynn (2013). Gene Expression in Native Fish as a Biomarker for Contaminant Exposure, National Collegiate Honors Council Annual Conference in New Orleans, LA, November.

**Awards and/or Honors:**

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

**Post-Graduation Plans (Seniors only):**

N/A

**Knippenberg, Austin****Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

Moth and Butterfly Diversity Surveys: Purpose, Resources, and Methodology

**Project Abstract/Summary:**

Moths and butterflies (Lepidoptera) are a tremendously diverse group of organisms with over 12,400 species in North America and nearly 2,500 species in Kentucky. They feed on a wide range of host plants, which makes them an ideal surrogate for the study of biodiversity. The purpose of this project is to create a base-line county-level inventory of moths and butterflies in Rowan County, because there have been very few extensive lepidopteran surveys in Kentucky. Resources include research and teaching collections (University of Kentucky, Morehead State University), private collections, print resources (checklists, field guides, research monographs), websites (Moth Photographer's Group, Kentucky Lepidopterists Society), and regional experts in the identification of moths and butterflies. Methodology includes collection techniques (black lights, sweep nets, baiting, etc.), preparation techniques (pinning, spreading, labeling, etc.), and identification. This poster serves as an introduction to the purpose resources, and methodology for this project. Other presentations will encompass the results and discussion of our ongoing lepidopteran survey. Partial funding for this project was provided by the Department of Biology and Chemistry.

**Project Dissemination:****Poster Presentation:**

Knippenberg, Austin and Sean O'Keefe (2014). Moth and Butterfly Diversity Surveys: Purpose, Resources, and Methodology, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Kremser, Victor****Major:**

Pre-Med

**Faculty Mentor:**

Christopher Cottingham

**Research/Project Title:**

Investigating the Role of Antipsychotic Drugs as Adrenergic Receptor Ligands

**Project Abstract/Summary:**

This research project will investigate how various psychoactive medications of the tricyclic chemical class drive, inhibit, or modulate cell signaling by the alpha2A adrenergic receptor. The research will allow the student to gain an appreciation for basic research and become familiar with/proficient in the basic and widely-used lab techniques of 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 past semester, the student has succeeded in learning mammalian cell culture techniques, skills which were completely new to him. He has spent a great deal of time optimizing and troubleshooting a general culture protocol for the lab, demonstrating excellent patience, perseverance, and problem-solving skills. The work he has done will allow us now to move forward rapidly with assaying the effects of the tricyclic drugs on alpha2A receptor signaling, experiments which require reliable and continuous cell culture. Furthermore, Victor has learned how to observe and score an important in vivo behavioral assay for psychoactive medications, the mouse forced swim test (FST). He successfully observed and scored a large cohort of FST videos, generating data that will aid in the publication of a manuscript in the coming months.

**Project Dissemination:****Publication:**

Cottingham, C., Birky, T. and Wang, Q. (2014). Neurabin-null Mice Exhibit a Variable Anxiolytic and Anti-depressive Behavioral Phenotype, In preparation for submission to Neuroscience.

**Poster Presentation:**

The student will present a poster on his research efforts at the Annual Kentucky Academy of Science meeting in the fall, and will participate in the Morehead State University Celebration of Student Scholarship next spring.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

N/A

**Lucas, Bailey****Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

The Use of Analytical Methods to Assess Beetle Biodiversity in Yellow Pan vs. Brown Pan Traps

**Project Abstract/Summary:**

Numerous analytical methods are used to evaluate biodiversity. Assessing biodiversity is integral for conservation evaluation. Beetles, with over 90,000 species in North America alone, are extremely diverse and fulfill numerous ecological roles. Therefore, beetles are extremely applicable as surrogates to assess biodiversity. For this study we used several metrics to assess the diversity of beetles present in yellow pan vs. brown pan traps. Metrics we employed included richness, evenness, diversity indices, functional feeding groups and statistics. Richness focuses primarily on the different species present. Evenness focuses on the relative abundance of each species. Diversity indices, such as Shannon and Simpson, evaluate both the species richness and abundance. Also, we examined the prevalence of functional feeding groups, e.g. xylophages, predators, herbivores, fungivores, detritovores, necrophages, and scatophages. Lastly, we used the Kruskal-Wallis test to determine statistically significant differences among selected beetle species in yellow pan vs. brown pan traps. This project was partially supported by Morehead State's Undergraduate Research Fellowship program, and partially by the Department of Biology and Chemistry.

**Project Dissemination:****Poster Presentation:**

Lucas, Bailey and Sean O'Keefe (2014). The Use of Analytical Methods to Assess Beetle Biodiversity in Yellow Pan vs. Brown Pan Traps, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**McClanahan, Sarah****Major:**

Biomedical Science

**Faculty Mentor:**

Michael 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 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:****Poster Presentations:**

McClanahan, Sarah and Dr. Michael E. Fultz (2014). 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, National Council on Undergraduate Research Meeting, Lexington, KY, April.

McClanahan, Sarah and Dr. Michael E. Fultz (2013). The Effect of Rho-kinase Inhibitor Y-27632 on the Alpha-actin and the Beta-actin Cytoskeletal Domains in Resting and Stimulated Smooth Muscle Cells, Kentucky Academy of Science 99<sup>th</sup> Annual Meeting, Morehead State University, Morehead, KY, November.

**Awards and/or Honors:**

Placed 3<sup>rd</sup> in Physiology and Biochemistry poster competition at the Kentucky Academy of Science.

**Post-Graduation Plans (Seniors only):**

N/A

**McKinley, Zak****Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

Preliminary Comparison of Yellow Pan Traps vs. Pitfall Traps as an Assessment of Spider Diversity

**Project Abstract/Summary:**

Several methods are available to assess spider diversity. The most common method for catching ground wandering spiders is the use of pitfall traps. Yellow pan traps are a common tool used for trapping invertebrates, specifically wasps and flies. We conducted an extensive review of scientific literature. Apparently yellow pan traps have not been used to assess spider diversity. The goal of this project was to compare species diversity, richness, and evenness in yellow pan traps, a novel method, to pitfall traps, the standard method. Four of 24 paired-sets of samples were compared using the Shannon index, Simpson index, richness indices, evenness, and Kruskal-Wallis non-parametric test. Thirteen genera, representing eight families were found in yellow pan traps while 10 genera representing 8 families were found in pitfall traps. This project was partially supported by Morehead State's Undergraduate Research Fellowship program, and partially by the Department of Biology and Chemistry.

**Project Dissemination:****Poster Presentation:**

McKinley, Zak and Sean O'Keefe (2014). Preliminary Comparison of Yellow Pan Traps as an Assessment of Spider Diversity, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

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

**Post-Graduation Plans (Seniors only):**

Student plans to enroll as a graduate student in the Department of Biology and Chemisty at Morehead State University.

**Modaff, Kelly****Major:**

Biology

**Faculty Mentor:**

Allen Risk

**Research/Project Title:**

Vascular Plant Inventory of the Rowan County Sphagnum Swamp, Farmers, Kentucky

**Project Abstract/Summary:**

The Rowan County Sphagnum Swamp (RCSS), an uncommon bottomland swamp forest, is situated slightly north of Green Mountain in western Rowan County. The site has standing water from November to June and is underlain by Middle Silurian Estill Shale topped by Quaternary alluvium. RCSS is within the Licking River floodplain and is comprised of 22 mostly forested acres and a pipeline right-of-way. Topographically, the area exhibits a gradual down-hill slope from east to west. The purpose of this study (funded by the Kentucky Society of Natural History) was to generate a specimen-based vouchered list of the plants currently present in this rare plant community and to include specimens collected by previous researchers. On the basis of numerous field trips to the site and examination of the Morehead State University Herbarium, 168 species were documented. Rare species documented included *Carex seorsa*, *C. straminea*, *Vernonia noveboracensis*, *Gratiola viscidula*, *Quercus nigra*, *Q. phellos*, and *Decondon verticillatus*.

**Project Dissemination:****Oral Presentations:**

Modaff, Kelly L. and Allen C. Risk (2013). Vascular Plant Inventory of the Rowan County Sphagnum Swamp, Farmers, Kentucky, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Modaff, Kelly L. and Allen C. Risk (2013). Vascular Plant Inventory of the Rowan County Sphagnum Swamp, Farmers, Kentucky, Kentucky Society of Natural History, October.

Modaff, Kelly L. and Allen C. Risk (2013) Vascular Plant Inventory of the Rowan County Sphagnum Swamp, Farmers, Kentucky, Kentucky Academy of Science Meeting, Morehead, KY, November.

**Awards and/or Honors:**

First Place, Botany Section, Kentucky Academy of Science Meeting, Morehead, KY.

**Post-Graduation Plans (Seniors only):**

Student plans to attend Graduate school, the specific one is not decided yet.

**Nichols, Haley****Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

The Use of Analytical Methods to Assess Beetle Biodiversity in Yellow Pan vs. Brown Pan Traps

**Project Abstract/Summary:**

Numerous analytical methods are used to evaluate biodiversity. Assessing biodiversity is integral for conservation evaluation. Beetles, with over 90,000 species in North America alone, are extremely diverse and fulfill numerous ecological roles. Therefore, beetles are extremely applicable as surrogates to assess biodiversity. For this study we used several metrics to assess the diversity of beetles present in yellow pan vs. brown pan traps. Metrics we employed included richness, evenness, diversity indices, functional feeding groups, and statistics. Richness focuses primarily on the different species present. Evenness focuses on the relative abundance of each species. Diversity indices, such as Shannon and Simpson, evaluate both the species richness and abundance. Also, we examined the prevalence of functional feeding groups, e.g. xylophages, predators, herbivores, fungivores, detritovors, necrophages, and scatophages. Lastly, we used the Kruskal-Wallis test to determine statistically significant differences among selected beetle species in yellow pan vs. brown pan traps. This project was partially supported by Morehead State's Undergraduate Research Fellowship program, and partially by the Department of Biology and Chemistry.

**Project Dissemination:****Poster Presentation:**

Nichols, Haley and Sean O'Keefe (2014). The Use of Analytical Methods to Assess Beetle Biodiversity in Yellow Pan vs. Brown Pan Traps, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Perkins, Amanda****Major:**

Biology/Environmental Science

**Faculty Mentor:**

Sean O'Keefe

**Research/Project Title:**

Approaches to Measuring Beetle Diversity Among Three Sites

**Project Abstract/Summary:**

Regardless of size, all species have a relative part in enhancing the biodiversity of the ecosystem. Therefore, biodiversity is an important reflection of the magnitude of conservation in a given area. The most diverse group of organisms in the world is insects, specifically beetles, which comprise over 90,000 species in the United States. Diversity is reflected in their abundance, availability, and numerous ecological functions. For the purposes of this study, biodiversity measurements were derived from the Simpson and Shannon indices, Kruskal-Wallis statistical test, and quantitative comparison of functional feeding groups. These methodologies 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 and serves as the control of the study. This study was supported in part by the Undergraduate Research Fellowship program, and in part by the Department of Biology and Chemistry at Morehead State University.

**Project Dissemination:****Poster Presentation:**

Perkins, Amanda and Sean O'Keefe (2014). Approaches to Measuring Beetle Diversity Among Three Sites, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

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

**Post-Graduation Plans (Seniors only):**

N/A

**Petrey, Genna****Major:**

Biomedical Science

**Faculty Mentor:**

Allen Risk

**Research/Project Title:**

Relationship Between Climatic Variables and Tsuga Canadensis Growth Rates with Emphasis on Differentiating Canopy Position, at Spaws Creek, KY

**Project Abstract/Summary:**

Dendrochronology and dendroclimatology are two disciplines, that, when paired together, allow us to use patterns in dating and standardized width of tree rings to find associations between these annual rings and climatic variables, which can contribute to the reconstruction of past climates. Previous researchers generally avoid using subdominant trees when examining the affiliation between tree growth and climate because they tend to have more confounding variables that can veil the climate signal. The two primary 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 tree crown position on the significance level of these relationships. One hundred and eighty-two samples (150 overtopped/intermediate; 32 co-dominant/dominant) were taken from 91 Tsuga canadensis in 30 plots along Spaws Creek in Menifee and Morgan counties. Tree samples were analyzed to determine annual ring width relationships to three significant aspects of climate, specifically precipitation, temperature, and PDSI (Palmer Drought Severity Index). Co-dominant/Dominant and Overtopped/Intermediate both proved to be successful indicators of climate. Co-dominant trees were better indicators for both the previous and current year's climate than Overtopped trees, while showing little correlation with the previous year's climate, were still a good indicator for the current year. This research was supported by a Morehead State University Honors Program Undergraduate Research Fellowship.

**Project Dissemination:****Oral Presentation:**

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

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Rasp, Benjamin****Major:**

Biology

**Faculty Mentor:**

Allen Risk

**Research/Project Title:**

Dendroclimatological Comparison of Tsuga Canadensis and Liriodendron Tulipifera, Spaws Creek, Menifee and Morgan Counties, KY

**Project Abstract/Summary:**

The student worked on two projects this year and presented on both of them. The first one was the dendroclimatological comparison of white oak and red maple at Eagle Lake, Morehead. Student gave a poster presentation on this research at the 2013 Kentucky Academy of Science meeting.

The main project the student worked on this year was a dendroclimatological study that investigated the relationship between tree growth and climatic conditions. In the present study, the dendroclimatological utility of dominant and co-dominant Tsuga canadensis (eastern hemlock) and Liriodendron tulipifera (tulip tree) was compared. 40 Liriodendron tulipifera and 16 Tsuga canadensis individuals were assessed from the Spaws Creek area for significant correlations between precipitation, temperature, and Palmer drought severity index patterns and standardized annual ring widths. Hemlock's growth was more highly correlated with PDSI and temperature, whereas tulip tree's growth showed a stronger relationship to precipitation patterns. This research was supported by the College of Science and Technology and by an Undergraduate Research Fellowship from Morehead State University.

**Project Dissemination:****Oral Presentation:**

Rasp, Benjamin C. and Risk, Allen C. (2013). Dendroclimatological Comparison of Red Maple and White Oak, Eagle Lake, Morehead, KY, Kentucky Honors Roundtable, Northern Kentucky University, Highland Heights, KY, October.

**Poster Presentations:**

Rasp, Benjamin C. and Risk, Allen C. (2013). Dendroclimatological Comparison of Red Maple and White Oak, Eagle Lake, Morehead, KY, Kentucky Academy of Science, Morehead, KY, November.

Rasp, Benjamin C. and Risk, Allen C. (2014). Dendroclimatological Comparison of Tsuga Canadensis and Liriodendron Tulipifera, Spaws Creek, Menifee and Morgan Counties, KY, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Second place, Undergraduate Research Poster Competition, Botany Section, Kentucky Academy of Science, November.

**Post-Graduation Plans (Seniors only):**

N/A

**Reed, Kasey****Major:**

Biology

**Faculty Mentor:**

Geoffrey Gearner

**Research/Project Title:**

PCR Detection of Antibiotic Resistance Genes in DNA Extracted Directly from Stream Samples

**Project Abstract/Summary:**

Previous work in our laboratory demonstrated that antibiotic resistance genes (ARG) can be detected in isolates of the bacterium *Escherichia coli* (an indicator of fecal pollution) collected from stream samples using the polymerase chain reaction (PCR). In this project, we wanted to know if the PCR could amplify ARG sequences from DNA extracted directly from stream water samples. Samples were collected from a variety of established collecting sites in the Triplett Creek Watershed, and total DNA was extracted using a commercial kit. Primers specific for the ARGs *ereA*, *sul-I*, *msrA/B*, and *tetO* were used in PCR. PCR products were assessed by agarose gel electrophoresis. ARGs were detected in some of the samples, indicating that the method does work. ARGs have the potential to be utilized as not only indicators of fecal contamination, but also in microbial source tracking efforts that can determine the host and point sources of fecal pollution in watersheds. The student worked as part of a team that included another Undergraduate Research Fellow (Natasha Whitt). Kasey worked for 2 semesters in the lab as an Honors student Undergraduate Research Fellow, as a volunteer Undergraduate Research Fellow in Spring 2013, and as a paid Undergraduate Research Fellow for AY 2013-14.

**Project Dissemination:****Presentations:**

Reed, Kasey, Natasha Whitt, Marissa Kamelgarn and Geoffrey W. Gearner (2013). PCR Detection of Antibiotic Resistance Genes in DNA Extracted Directly from Stream Samples, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead State University, Morehead, KY, November.

Reed, Kasey, Natasha Whitt and Geoffrey Gearner (2014). The Potential Use of Antibiotic Resistant Genes as Microbial Source Tracking Markers, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student graduated from Morehead State in May, 2014, and will enter medical school (Lincoln Memorial University) this fall.

## **Washburn, Brooke**

### **Major:**

Environmental Science

### **Faculty Mentor:**

David Eisenhour

### **Research/Project Title:**

Dispersal Abilities of Frecklebelly Darters (*Percina Stictogaster*)

### **Project Abstract/Summary:**

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 instream barriers than benthic darters.

### **Project Dissemination:**

#### **Presentation:**

November 2013: Student presented (oral presentation) at (1) Southeastern Fishes Council, Lake Guntersville State Park, Alabama, and (2) Kentucky Academy of Science, Morehead State University.

February 2014: Student presented (oral presentation) at CUR, Frankfort, KY.

April 2014: Student presented (oral presentation) at Celebration of Student Scholarship, Morehead State University.

Present: We have begun manuscript preparation (goal – to be submitted to Kentucky Academy of Science by December 2014).

Washburn, B., C.R. Gingras and D.J. Eisenhour. Dispersal Ability of the Frecklebelly Darter (*Percina Stictogaster*), Native American Fish Society meetings, Cumberland State Park, April, and Kentucky Academy of Science Meetings, Morehead, Kentucky (November, 1<sup>st</sup> place), and Southeastern Fishes Council meeting, Lake Guntersville, Alabama (November, 2<sup>nd</sup> place).

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

### **Awards and/or Honors:**

2<sup>nd</sup> place for oral presentations, Southeastern Fishes Council, Lake Guntersville State Park, Alabama, November, 2013..

1<sup>st</sup> place for oral presentations, Undergraduate, Kentucky Academy of Science, Morehead. November. Recognition, oral presentations, Celebration of Student Scholarship, Morehead, KY, April, 2014.

### **Post-Graduation Plans (Seniors only):**

Student will return for her fourth year at Morehead State University.

## **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. This herbaceous inventory will complement previous studies of the pteridophytes and woody plant species in the park. This ongoing inventory of the herbaceous angiosperms of the park included specimens from an assessment of the Morehead State University Herbarium (MDKY) and those collected from the spring 2013 to the spring 2014 semester. Two hundred and four species in total were documented thus far. In the 2014 fall semester, 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 Honors Program Research Fellowship at Morehead State University.

**Project Dissemination:****Poster Presentations:**

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

**Oral Presentation:**

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

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Whitt, Natasha****Major:**

Biology

**Faculty Mentor:**

Geoff Gerner

**Research/Project Title:**

PCR Detection of Antibiotic Resistance Genes in DNA Extracted Directly from Stream Samples

**Project Abstract/Summary:**

Previous work in our laboratory demonstrated that antibiotic resistance genes (ARG) can be detected in isolates of the bacterium *Escherichia coli* (an indicator of fecal pollution) collected from stream samples using the polymerase chain reaction (PCR). In this project, we wanted to know if the PCR could amplify ARG sequences from DNA extracted directly from stream water samples. Samples were collected from a variety of established collecting sites in the Triplett Creek Watershed, and total DNA was extracted using a commercial kit. Primers specific for the ARGs *ereA*, *sul-I*, *msrA/B*, and *tetO* were used in PCR. PCR products were assessed by agarose gel electrophoresis. ARGs were detected in some of the samples, indicating that the method does work. ARGs have the potential to be utilized as not only indicators of fecal contamination, but also in microbial source tracking efforts that can determine the host and point sources of fecal pollution in watersheds. The student worked as part of a team that included another Undergraduate Research Fellow student (Kasey Reed). The student worked for 2 semesters in the lab as an Honors student Undergraduate Research Fellow, and another semester as a volunteer Undergraduate Research Fellow, and this past year as a volunteer Undergraduate Research Fellow.

**Project Dissemination:****Presentations:**

Reed, Kasey, Natasha Whitt, Marissa Kamelgarn and Geoffrey Gerner (2013). PCR Detection of Antibiotic Resistance Genes in DNA Extracted Directly from Stream Samples, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead State University, Morehead, KY, November.

Reed, Kasey, Natasha Whitt and Geoffrey W. Gerner (2014). The Potential Use of Antibiotic Resistant Genes as Microbial Source Tracking Markers, 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****Major:**

Biology

**Faculty Mentor:**

Geoffrey Gearer

**Research/Project Title:**

Using DNA Barcoding to Identify Bacteria Isolated from Water Samples

**Project Abstract/Summary:**

The student started into Dr. Gearer'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. The student will apply to continue her URF for the next academic year.

**Project Dissemination:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

The student will enter her senior year of studies next year, and then apply to a Medical/Clinical Laboratory Sciences Program.

**Witkowski, Travis****Major:**

Biomedical Science

**Faculty Mentor:**

Janelle Hare

**Research/Project Title:**

Identifying the Role of ddrR in the Acinetobacter Baylyi DNA Damage Response

**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 the umuDAb gene alone was regulated by the ddrR gene, but not any others in the DNA damage-dependent regulon we tested.

**Project Dissemination:****Publication:**

Hare, J.M., Ferrell, J., Witkowski, T. and A.N. Grice (2014). Prophage Induction and Differential RexA and UmuDAB Transcriptome Regulation in the DNA Damage Responses of *Acinetobacter Baumannii* and *Acinetobacter Baylyi*. PLoS ONE 9(4): e93861. Doi:10.1371/journal.pone.0093861.

**Poster Presentations:**

Witkowski, T., Grice, A. and J.M. Hare (2014). Identifying the Role of *ddrR* in the *Acinetobacter Baylyi* DNA Damage Response, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Witkowski, T., Grice, A., Ferrell, J., Bradley, J. and J.M. Hare (2013). Identifying a Possible Regulatory Mechanism for 4 Regulons of DNA Damage Induced Genes in *Acinetobacter Baylyi* ADP1, Kentucky Academy of Sciences General Meeting, Morehead State University, Morehead, KY.

**Awards and/or Honors:**

Student earned a Certificate of Merit for his Celebration of Student Scholarship poster presentation, which is an award given to the top 7.5% of all posters across the College of Science and Technology.

**Post-Graduation Plans (Seniors only):**

N/A

## ***DEPARTMENT OF EARTH AND SPACE SCIENCE***

**Brooke, Sharon****Major:**

Geology

**Faculty Mentor:**

Jen O'Keefe

**Research/Project Title:**

Fungal Diversity in Cretaceous – Cenozoic Coals

**Project Abstract/Summary:**

Coals from the Wilcox Group of Texas are generally well-studied; however, the distribution and ecological niches of fungi in these coals are poorly understood. Organic petrography and palynology are used in tandem to define the relative distribution and types of fungi contained in the coals and associated sediments. Funginite is a common inertinite maceral in these coals (up to 8.5%), and fungal palynomorphs are very common and diverse components of the palynological spectrum, ranging from 6 – 77% of the total. Saprophytic, parasitic, and mutualistic forms are all present, as are abundant hyphae. Samples are dominated by hyphae. Monoporisorites, Diporisorites, with some containing abundant *Nigraspora*. When the dominant taxa are excluded from statistical analyses, four groupings can be made: 1) samples containing high-diversity, low-abundance fungal forms; 2) very low diversity, low-abundance assemblages; 3) assemblages that are enriched in *Dicellaesporites*; and 4) assemblages that contain *Lacrimasporites*. Within groups 1 and 4, all of the samples that come from the tops of the coal seams contain small forms of *Fusiformisporites* that are morphologically identical to *Atrotorquata lineata*, known to occur only as a saprophyte on *Juncus* stands. Thus, we postulate that groups 1 and 2 represent different aspects of high salt-marsh environments. Supporting this interpretation, we note that group four also contains *Lacrimasporites* forms that are indistinguishable from the unnamed taxon reported by Marsh and Cohen (2007) considered to be an associate of *A. lineata*. Groups 1 and 4 are enriched in densinite, indicating significant aerial exposure of the peat prior to incorporation in the mire. Our results support earlier studies, indicating increased peat decomposition up-section within the coals coupled with a transition from peats formed in freshwater swamp environments to those formed in marshes that may have been impacted by brackish waters.

Many taxa encountered in this study are known only by unvalidated names. Determination of which taxa are validated and which are not, as well as completion of photography and redescriptions of unvalidated taxa as well as descriptions of taxa that are new-to-science was begun but remains incomplete. This will be a major emphasis for next year, as will continued expansion of the project into older rocks.

**Project Dissemination:****Poster Presentations:**

Brooke, S.J., Johnston, M.N. and O'Keefe, J.M.(2014). Fungal Indicators of Depositional Environments and Decompositional Pathways in a Paleocene Wilcox Group Coal, Ohio Valley Organic Petrographers' Meeting, Lexington, KY, March.

Brooke, S.J., Johnston, M.N. and O'Keefe, J.M.(2014). Examining Microbial Diversity in a Paleocene Wilcox Group Coal from Texas. NCUR, Lexington, KY, April.

Brooke, S.J., Johnston, M.N. and O'Keefe, J.M.(2014). Examining Microbial Diversity in a Paleocene Wilcox Group Coal from Texas. Posters-at-the-Capitol, Frankfort, KY, February.

Brooke, S.J., Johnston, M.N. and O'Keefe, J.M.(2014). Examining Microbial Diversity in a Paleocene Wilcox Group Coal from Texas. Celebration of Student Scholarship, Morehead, KY, April.

Brooke, S.J., Johnston, M.N., & O'Keefe, J.M.(2013). Examining Microbial Diversity in a Paleocene Wilcox Group Coal from Texas. Peace Love and Palynology: A Joint Meeting of the 46th Annual Meeting of AASP-The Palynological Society, CIMP - Commission Internationale de la Microflore du Paléozoïque Subcommissions, CAP – The Canadian Association of Palynologists, NAMS – The North American Micropaleontological Section of SEPM, and Dino-10, San Francisco, CA, October.

**Awards and/or Honors:**

2013 Student Travel Grant, AASP-The Palynological Society; to fund attendance at the 2013 AASP-TPS meeting in San Francisco, CA.

**Post-Graduation Plans (Seniors only):**

N/A

**Cavins, Andrew**

**Major:**

Space Science

**Faculty Mentor:**

Bob Twiggs

**Research/Project Title:**

Spacecraft Deployment Mechanisms and Structures

**Project Abstract/Summary:**

Small satellites are required to utilize deployable structures owing to their limited volume especially during stow configuration. Our team develops deployable solar arrays, antennas, booms for sensitive instruments and other deployable systems. This project involves designing and developing prototypes for mechanical deployable systems for a variety of spacecraft developed by the Space Science Center. The technologies developed will be demonstrated by means of physical models and finite-element models, based on preliminary designs. Construction and testing of proper demonstrator hardware, is required to further evaluate the proposed solutions.

**Project Dissemination:**

**Presentation:**

Cavins, James D. and Kruth, Jeffery (2013). Development of a Helmholtz Coil for NanoSatellite Attitude Control, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Collins, Justin**

**Major:**

Geology

**Faculty Mentor:**

Jen'O'Keefe

**Research/Project Title:**

Paleoecology of Claiborne Lignite, Western Tennessee

**Project Abstract/Summary:**

This project extends the work of former Undergraduate Research Fellow Dutton, Howard and Layne. Specifically, palynology slides will be made from residues processed by Howard and the contents analyzed quantitatively. The quantitative results will be co-analyzed with petrography data produced by Layne and O'Keefe using R-mode Cluster Analyses to determine paleoecological groupings. These groupings will be compared to those found in O'Keefe (2008) to determine if the depositional environments recorded in the Weakly Co., TN, lignite were the same as those recorded by the Carlisle Lignite in Kentucky. Additionally, Nearest-Living-Relative (NLR) analyses will be used to define the paleoclimate recorded by these plant communities.

**Project Dissemination:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Dang, Kien****Major:**

Space Science

**Faculty Mentor:**

Kevin Brown

**Research/Project Title:**

Development of a High Efficiency Electrical Power System (EPS) for CubeSats

**Project Abstract/Summary:**

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

**Project Dissemination:****Presentation:**

Dang, Kien, Brown, Kevin and Malphrus, Benjamin (2013). Development of a Versatile and Efficient Electrical Power System for Small Satellites, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

Kien T. Dang, Jeffrey A. Kruth and Benjamin Malphrus (2014). A Circularly Polarized Antenna and Phasing Network System for Nanosatellites, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Kien T. Dang, Kevin Z. Brown and Benjamin Malphrus (2014). Development of a Versatile and Efficient Electrical Power System for Small Satellites, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Dang, K., Brown, K. and Malphrus (2013). Development of a Versatile and Efficient Electrical Power System for Small Satellites. First Place, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

BambooRF-Morehead State University: BambooRF received \$1,270 for a business concept to manufacture radio frequency instruments from the Kentucky College Entrepreneurs Idea State U Business Plan Competition.

BambooRF also received the Governor's Innovation Award. The trophy and \$500 is presented to the team that best demonstrates innovative and "out of the box" thinking.

**Post-Graduation Plans (Seniors only):**

Student plans to enter the Morehead State University Master of Science in Space Systems Engineering program in the Fall of 2014. He also plans to launch a small business BambooRF in the Morehead ICC incubator center.

**Fitzpatrick, Jon****Major:**

Space Science

**Faculty Mentor:**

Ben Malphrus

**Research/Project Title:**

Numerical Modeling and Simulation of Nanosatellite Orbits

**Project Abstract/Summary:**

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

**Project Dissemination:****Presentation:**

Fitzpatrick, John (2014). Numerical Modeling and Orbit Simulation of Morehead State University Small Satellite Missions, Senior Thesis Presentation, Space Science Center, Morehead State University, May.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to either search for work as an astronautical engineering technician in the aerospace industry or potentially pursue the Master of Science in Space Systems Engineering at Morehead State in the Fall of 2014.

**Healea, Jordan****Major:**

Space Science

**Faculty Mentor:**

Ben Malphrus

**Research/Project Title:**

The Characterization and Evaluation of Extreme Sensitivity X-ray Detector for Measurement of the Cosmic X-ray Background

**Project Abstract/Summary:**

Modern day X-ray and Gamma ray detector technology has allowed for the advancement in a range of disciplines ranging from medical imaging to astrophysics research. A new generation of direct bandgap semiconductors utilizing Cadmium Zinc Telluride (CZT) is used in a variety of applications, including radiation detectors, photorefractive gratings, electro-optic modulators, solar cells, and terahertz generation and detection. High energy astrophysics research conducted at Morehead State involves precise measurements and distribution mapping of the cosmic diffuse X-ray background (DXB) utilizing extremely sensitive X-ray/Gamma ray detectors implemented on small spacecraft platforms. This study involves evaluating CZT detectors used in medical imaging devices for potential use in making precise measurements of the DXB. Requirements for these detector systems include sensitivity of photon energies ranging from 10 to 80 keV (DXB peaks at 30 keV), extremely low power usage (under 600 milliWatts), excellent gain and energy resolution, and good spatial resolution that requires 256+ pixels. Characterization and calibration of these systems are underway at Morehead State Space Science Center using Cadmium-109, Cobalt-57, and Americium-241 as test x-ray sources as well as using x-ray attenuation and x-ray fluorescence for collimator design and sensitivity characterization. Other designs undertaken during the project include a single board computer for processing and a high voltage power supply for detector biasing, both of which will be designed and built at Morehead State University. The goal is to adapt and package a high resolution, extremely sensitive X-Ray/Gamma ray imaging module for measuring the DXB on a small spacecraft platform.

**Project Dissemination:****Presentation:**

Healea, Jordan, McNeil, Sean, Kruth, Jeffery and Malphrus, Benjamin (2013). The Characterization and Evaluation of Extreme Sensitivity X-ray Detector for Measurement of the Cosmic X-ray Background, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

Healea, Jordan, Jeff Kruth and Benjamin Malphrus (2014). Morehead State University, and Sean McNeil, Louisiana State University (2014). The Characterization and Evaluation of Extreme Sensitivity X-ray Detector for Measurement of the Cosmic X-ray Background, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to either search for work as an astronautical engineering technician in the aerospace industry or potentially pursue the Master of Science in Space Systems Engineering at Morehead State in the Fall of 2014.

**Kosakowski, Alekzander****Major:**

Astrophysics

**Faculty Mentor:**

Thomas Pannuti

**Research/Project Title:**

An Analysis of Archival Chandra X-ray Observations of Blazars

**Project Abstract/Summary:**

Active Galactic Nuclei (AGNs) have attracted a considerable amount of attention in modern astrophysics from both observational and theoretical perspectives. Much of the research on these sources concentrates on the details of the relationship between the supermassive black holes located at the centers of galaxies and the generation of jets of enormously energetic particles seen to emanate from these sources. The particular class of AGNs known as blazars are distinguished by an observed inclination angle where the observer may see the "central engine" without obscuration: studies of blazars, therefore, hold the promise of revealing properties of these sources without the shroud of obscuring dust and gas which interferes with studies of AGNs that are perceived at a more oblique observing angle. In fact, blazars have been studied over very broad ranges of the electromagnetic spectrum, often over multiple decades of energy (namely gamma-ray through radio): complementary observations of these sources at multiple wavelengths (and often conducted simultaneously) have yielded tremendous insights into the properties of these sources. Observations of blazars with the STA comprise a crucial portion of the science program of the instruments, where measurements of the flux densities of blazars can be compared with observations made at other wavelengths with the intent of constraining the types and characteristics of the emission mechanisms (such as synchrotron radiation) that are responsible for the observed emission.

The research project that is the basis of this proposed Undergraduate Research Fellowship is to obtain and analyze archival X-ray observations made of blazars using the Chandra X-ray Observatory. Alek will begin his work with the approximately 20 blazars that form a program sample of sources to be observed with the STA and he will search for archival Chandra observations of these objects. He will then analyze these archival sets with the intent of extracting and fitting the spectra of these sources: while the nominal X-ray spectrum of a blazar is expected to be produced by synchrotron emission and should be best fit with a power-law with a photon index  $r \sim 2$ , several blazars have shown evidence for featuring multiple components in their X-ray spectrum (for example, thermal components have been detected as well as the nominal synchrotron component). In the next stage of the research project, Alek will search for archival Chandra observations of additional known blazars (such as 3C sources – that is, sources that belong to the Third Cambridge catalog of radio sources) that feature a flux density high enough to be detected with the STA. In this manner, Alek will increase the number of blazars contained in the science program for the STA as well as develop a statistically significant sample of objects for general comparisons between radio and X-ray properties.

**Project Dissemination:****Presentation:**

Kosakowski, A. and Pannuti, T.G. (2013). Spatially-Resolved Spectral Analysis of the Galactic Supernova Remnant G1.9+0.3, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead State University, Morehead, KY, November.

Kosakowski, A.R. and Pannuti, T.G. (2014). A Chandra Observation of the Mixed-Morphology Supernova Remnant W28 (G6.4-0.1), Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Alekzander Kosakowski, 1<sup>st</sup> Place, Undergraduate Poster Presentation, Physics and Astronomy Division, 2013 Kentucky Academy of Science Meeting.

**Post-Graduation Plans (Seniors only):**

N/A

**Moffitt, William****Major:**

Astrophysics

**Faculty Mentor:**

Thomas Pannuti

**Research/Project Title:**

An Analysis of Archival Chandra X-ray Observations of Blazars

**Project Abstract/Summary:**

Active Galactic Nuclei (AGNs) have attracted a considerable amount of attention in modern astrophysics from both observational and theoretical perspectives. Much of the research on these sources concentrates on the details of the relationship between the supermassive black holes located at the centers of galaxies and the generation of jets of enormously energetic particles seen to emanate from these sources. The particular class of AGNs known as blazars are distinguished by an observed inclination angle where the observer may see the “central engine” without obscuration: studies of blazars, therefore, hold the promise of revealing properties of these sources without the shroud of obscuring dust and gas which interferes with studies of AGNs that are perceived at a more oblique observing angle. In fact, blazars have been studied over very broad ranges of the electromagnetic spectrum, often over multiple decades of energy (namely gamma-ray through radio): complementary observations of these sources at multiple wavelengths (and often conducted simultaneously) have yielded tremendous insights into the properties of these sources. Observations of blazars with the STA comprise a crucial portion of the science program of the instrument, where measurements of the flux densities of blazars can be compared with observations made at other wavelengths with the intent of constraining the types and characteristics of the emission mechanisms (such as synchrotron radiation) that are responsible for the observed emission.

The research project that is the basis of this proposed Undergraduate Research Fellowship is to obtain and analyze archival X-ray observations made of blazars using the Chandra X-ray Observatory. William will begin his work with the approximately 20 blazars that form a program sample of sources to be observed with the STA and he will search for archival Chandra observations of these objects. He will then analyze these archival sets with the intent of extracting and fitting the spectra of these sources: while the nominal X-ray spectrum of a blazar is expected to be produced by synchrotron emission and should be best fit with a power-law with a photon index  $r \sim 2$ , several blazars have shown evidence for featuring multiple components in their X-ray spectrum (for example, thermal components have been detected as well as the nominal synchrotron component). In the next stage of the research project, William will search for archival Chandra observations of additional known blazars (such as 3C sources – that is, sources that belong to the Third Cambridge catalog of radio sources) that feature a flux density high enough to be detected with the STA. In this manner, William will increase the number of blazars contained in the science program for the STA as well as develop a statistically significant sample of objects for general comparisons between radio and X-ray properties.

**Project Dissemination:****Presentation:**

Moffitt, W.P. and Pannuti, T.G. (2013). Time Variability in the X-ray Emission from the Discrete Source Population of the Nearby Spiral Galaxies NGC 45 and NGC 6946, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead State University, Morehead, KY, November.

Moffitt, W.P. and Pannuti, T.G. (2014). X-ray and Radio Observations of the Spiral Galaxies NGC 45 and IC 342, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student is enrolling for graduate studies in the Department of Physics and Astronomy at the University of Tennessee, pursuing a Masters Degree in physics.

**Price, Shelby****Major:**

Astrophysics

**Faculty Mentor:**

Thomas Pannuti

**Research/Project Title:**

An Analysis of X-ray Emission from the Galactic Supernova Remnants with the Chandra X-ray Observatory

**Project Abstract/Summary:**

Remarkable gains in both the flux sensitivities and the angular resolution capabilities have been realized with the current generation of X-ray observatories, namely XMM-Newton and Chandra. One field of study in X-ray astronomy that has seen tremendous growth (precisely due to these gains) is the study of X-ray synchrotron emission from Galactic supernova remnants (SNRs). Very energetic cosmic-ray electrons that have been accelerated to extremely relativistic velocities are known to generate this emission. However, the exact details of cosmic-ray acceleration by SNRs remain elusive: unresolved issues in these fields include the maximum energies that may be attained by cosmic-ray electrons accelerated by SNRs as well as the spatial distribution (either in diffuse features or in narrow filaments) of these electrons along the expanding shock fronts of SNRs. Complementary X-ray and radio observations of Galactic SNRs are frequently conducted and analyzed to help constrain models of synchrotron emission from these sources over very broad ranges of the electromagnetic spectrum (often multiple decades of energy).

Several Galactic SNRs – including historical SNRs like Cassiopeia A, Tycho and Kepler as well as older SNRs – have been the targets of pointed observations made with Chandra but the analysis that has been completed to date (even in published papers) remains incomplete. Inspection of individual Chandra observations of these SNRs often reveal the presence of high energy X-ray emission (assumed to be synchrotron in origin) located in both narrow filaments along the leading shock front of the expanding SNR as well as in diffuse emission seen toward the SNR interior. Published studies of these SNRs in the literature have usually concentrated on the low-energy X-ray emission (which is thermal in origin) from these sources. A detailed study of the regions of high-energy synchrotron X-ray emission from Galactic SNRs by considering available archival Chandra observations made of these sources. She will also make use of observations made of Galactic SNRs with the 21-Meter to constrain the radio synchrotron emission from the SNRs on a whole: extrapolations of the observed radio synchrotron emission from these sources will be made into the X-ray region of the electromagnetic spectrum. Dr. Pannuti has experience in analyzing data from Chandra and has a research background in synchrotron X-ray emission from Galactic SNRs.

**Project Dissemination:****Presentation:**

Price, S.R. and Pannuti, T.G. (2014). An Observer's Manual for the Operation of the Morehead State University's 21-Meter Space Tracking Antenna, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Taulbee, Zach****Major:**

Space Science

**Faculty Mentor:**

Jeff Kruth

**Research/Project Title:**

Mechanical Systems for Spacecraft

**Project Abstract/Summary:**

The mechanical systems of spacecraft for comprise 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 components. 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:****Presentation:**

Taulbee, Zach, Miller, Travis and Kruth, Jeffery (2013). Design and Fabrication of Morehead-Rome Femtosat Orbital Deployers, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

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

**Awards and/or Honors:**

Taulbee, Zach., Miller, T. and Kruth, J. (2013). Design and Fabrication of Morehead-Rome Femtosat Orbital Deployers, Third Place, 99<sup>th</sup> Annual Kentucky Academy of Science Meeting, Morehead, KY, November.

**Post-Graduation Plans (Seniors only):**

N/A

**Wilczewski, Sarah**

**Major:**

Space Science

**Faculty Mentor:**

Ben 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-bandwidth 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 ( $\leq 0.01^\circ$  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.

**Project Dissemination:****Presentation:**

Wilczewski, Sarah, Haught, Kennedy, Malphrus, Benjamin, Brown, Kevin, Twiggs, Robert and Kruth, Jeffrey (2014). Small Satellite Mission Operations at Morehead State University, 11<sup>th</sup> Annual CubSat Developers' Workshop, San Luis Obispo, CA, April.

**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 supplements. There is not very much research surrounding why 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 consuming the supplements? 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:****Presentation:**

Student needs to collect additional survey data in order to have an adequate sample. He will disseminate in Spring 2015 at the Celebration of Student Scholarship.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

He is a senior that will be applying to PT programs.

## ***DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND PHYSICS***

### **Blankenship, Scott**

**Major:**

Physics

**Faculty Mentor:**

Jennifer Birriel

**Research/Project Title:**

Development of a Linux-Based Computer of Astrophysical Research

**Project Abstract/Summary:**

Reduction and measurement of astrophysical data required sophisticated, Linux-or Unix-based software. Here we describe the process of installing the Image Reduction and Analysis Facility (IRAF) package developed and distributed by the National Optical Astronomical Observatories. We installed the Linux version of IRAF on an UBUNTU operating system. A second identical laptop is prepared by cloning the first. The system was also tested using real astronomical data to ensure proper installation.

**Project Dissemination:****Oral Presentation:**

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

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Student is graduating with a physics BS degree and has obtained employment as a software engineer at Reynolds & Reynolds in Dayton, OH.

**Byrd, Jonathon****Major:**

Computer Science

**Faculty Mentor:**

Robin Blankenship/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 matching learning technology. The student studied the basic data mining techniques and algorithms such as KNN, SVM, C4.5, Bayesian networks, and others. He became familiar with the common methods for preparing data for mining, and measuring the effectiveness of different techniques. He implemented the KNN algorithm in C++ and used a dataset for training and testing. The student started to study the current security techniques in mobile computing environment. He learned how to collect different behavior data of mobile users and how to design and implement mobile applications.

**Project Dissemination:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Chang, Jorge****Major:**

Computer Science/Math

**Faculty Mentor:**

Heba Elgazzar

**Research/Project Title:**

Comparison Between Different Classification Techniques (Content Based Image Retrieval)

**Project Abstract/Summary:**

The purpose of this project is to develop and optimize a content-based image retrieval system that can be used to compare an input image against a database of images to retrieve similar images and categorize it. The comparison is based on the actual contents of these images. A number of popular image processing techniques have been used to extract important features from images and increase the matching performance. A multi-histogram approach that includes standard, global and semi-global edge histogram, and color histogram has been used. Additionally, different data mining techniques were considered to classify the images using Weka, a library for the implementation of data mining techniques, we were able to feed the system with images and get their best matches.

**Project Dissemination:****Presentation:**

The student presented the project at KAS (Kentucky Academy of Science). He also represented at NCUR 2014 (National Conference for Undergraduate Research). At the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

First Place in Kentucky Academy of Science 2013.

**Post-Graduation Plans (Seniors only):**

The student has been accepted in the Ph.D. Programs at the University of Pittsburgh, Ohio State University, Drexel University and North Carolina State University. All of them with financial support. RA position at Drexel and TA position at the other universities. He signed for Ohio State University and he will start his Ph.D. study in Fall 2014 as a TA.

**Cook, Lucas****Major:**

Computer Science

**Faculty Mentor:**

Heba Elgazzar

**Research/Project Title:**

Analysis and Modeling of Social Networks

**Project Abstract/Summary:**

The goal of this project is to analyze the data collected by social networks and to generate network models that can be used to describe the behavior of users of social network. These models can be used to understand the interactions between users of social networks and to enhance the design of future social networks. Machine learning and data mining techniques can be used to extract behavior and interaction models. The student involved in the project will be introduced to the fields of social networks, machine learning, and data mining. He will learn how to design and implement different machine learning and clustering algorithms that can be used for social network analysis and modeling. Social networks datasets will be used to test the implemented techniques.

**Project Dissemination:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Duffy, Lauren****Major:**

Physics

**Faculty 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:****Presentation:**

The student gave a talk locally at the Morehead State University Celebration of Student Scholarship in April and at the KY Area Meeting of the American Astronomical Society on May 3 in Lexington, KY, at the University of Kentucky.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Student is planning on a career in engineering after graduation.

**Farrell, Jessica****Major:**

History/Mathematics

**Faculty Mentor:**

John Hennen

**Research/Project Title:**

The Historical Foundations of the Contemporary Local Foods and Worker Cooperative Networks in the United States

**Project Abstract/Summary:**

This project will include primary and secondary historical research, in addition to a set of oral history interviews, focusing on historical influences on the contemporary philosophies of reciprocal “moral economies,” as articulated by local food networks and worker cooperatives nationally and regionally. Applicant’s study will incorporate research into such projects as the homesteads of Scott and Helen Nearing in Vermont and Maine; the policy recommendations contained in E.F. Schumacher’s theories of environmental stewardship and sustainable economies; and the intellectual underpinnings of such proponents of reciprocal regional economies as Erik Reece, Gar Alperovitz, Wendell Berry, Rachel Carson, and Wes Jackson. The applicant will also study institutions that promote and educate around sustainable economies, such as the Good Life Institute and the Beehive Collective in Main; the Mondragon cooperative in Spain’s Basque region; environmental stewardship prototype programs at Berea and Warren Wilson colleges, and Hippy Hollow Farm and Sustainable Morehead locally. Interviews will include Whitesburg, KY residents involved in the local mercantile and cultural cooperatives.

**Project Dissemination:****Presentation:**

The student presented a version of her findings at the Appalachian Studies Conference at Marshall University, March. Presented the paper at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

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

The student was named the first annual college-wide recipient for excellence in undergraduate research (for several research projects she was involved in).

**Post-Graduation Plans (Seniors only):**

N/A

**Hohenstein, Erich****Major:**

Computer Science

**Faculty Mentor:**

Sherif Rashad

**Research/Project Title:**

Design and Implementation of Parallel Data Mining Algorithms

**Project Abstract/Summary:**

Data mining extracts implicit, previously unknown, and potentially useful information from large datasets. Although it is a very powerful tool, it can be a very time consuming task. With the evolution technology of new devices with multiple processors, we need to reconsider our programming approach to make use of these new technologies. The goal of this research project is to design and implement parallel algorithms that can be used for a wide range of data mining applications to mine large databases. Previously in this research, the student worked on the parallelization and implementation of the Apriori association algorithm, through the process of dividing the mining task over a defined number of parallel threads. The student in this phase of the project designed and implemented parallel versions of the K-means clustering algorithm in order to improve its performance. He compared the performance of the developed algorithms with the sequential algorithms for different numbers of clusters. The results of the proposed parallel data mining algorithms are promising. OpenMP was used to support shared-memory parallel programming in C++.

**Project Dissemination:****Presentations:**

Erich Hohenstein and Sherif Rashad (2014). Design and Implementation of Apriori and K-means Parallel Data Mining Algorithms, National Conference on Undergraduate Research (NCUR), April.

Erich Hohenstein and Sherif Rashad (2013). Design and Implementation of Parallel Data Mining Algorithms, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Computer and Information Sciences Section, Morehead, KY, November.

Erich Hohenstein and Sherif Rashad (2014). Design and Implementation of Apriori and K-means Parallel Data Mining Algorithms, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

Student was recently selected for an internship in Switzerland to participate in research on particle physics.

**Post-Graduation Plans (Seniors only):**

N/A

**Knell, Janie**

**Major:**

Mathematics

**Faculty Mentor:**

Wilson Gonzalez-Espada

**Research/Project Title:**

What Factors Influence the Use of Dietary Supplements Among College Students in Eastern Kentucky?

**Project Abstract/Summary:**

Dietary supplements are pills, capsules, tablets, or liquid products that contain a vitamin, mineral, herb, botanical, amino acid, or other concentrate, metabolite, constituent, or extracts. Although these products are usually marketed using health claims that do not have to be approved or safety-tested by the US FDA, Americans annually spend 20 billion dollars in these therapies. The literature on the use of dietary supplements has identified gaps in the knowledge associated with the factors that influence their use, especially among young adults in rural Appalachia. The purposes of this study are: (a) to collect information regarding demographics, type and quantity of supplements used, and how often they are used, and (b) to use inferential statistics to identify what factors are statistically related to an increased use of these alleged therapies. This information can be used to plan and design targeted awareness campaigns that will educate college students about the lack of scientific evidence supporting the effectiveness of dietary supplements. It was found that only two variables, amount of fruit or vegetables in the diet and number of doctor visits per year, had a significant relationship with dietary supplement use. The fact that an increase in fruit and vegetables in the diet corresponded to an increase in supplements use suggests that people are more conscientious about their diet take more supplements. This finding is consistent with additional data; that the most common reason for taking a dietary supplement was to improve wellbeing. Also, it was found that an increase in the number of doctor visits corresponded to an increase in dietary supplement use suggest that either the dietary supplements caused the individuals to become sick or that the individuals are self treating. This finding is consistent with additional data; that the second most common reason for taking a dietary supplement was to treat an illness. It was noted that many participants considered dietary supplements as indistinguishable from real medications. More education about the lack of effectiveness of dietary supplements and about the differences between supplements and medications is proposed. This study was supported by Morehead State University's Undergraduate Research Fellowship Program and the Department of Mathematics, Computer Science, and Physics.

**Project Dissemination:**

**Oral Presentations:**

Knell, Janie L., Wilhoite, A.P. and Gonzalez-Espada, Wilson J. (2013). Use of CAM Therapies Among College Students in Eastern Kentucky: A Pilot Study, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead, KY, November.

Wilhoite, Andrea P., Knell, Janie L. and Gonzalez-Espada, Wilson J. (2013). Dietary Supplements: Activities to Enhance Critical Thinking, Annual Conference of the Kentucky Science Teachers Association, Lexington, KY, November.

Knell, Janie L. (2014). Analysis of Factors that Influence the Use of Dietary Supplements Among College Students in Eastern Kentucky. Annual Meeting of the Kentucky Section of the Mathematical Association of America, Murray, KY, March.

**Poster Presentation:**

Knell, Janie L. (2014). Analysis of Factors that Influence the Use of Dietary Supplements Among College Students in Eastern Kentucky, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student plans to continue graduate studies in mathematics.

**Lamb, Zachary****Major:**

Computer Science

**Faculty Mentor:**

Sherif Rashad

**Research/Project Title:**

Mobile Data Mining Algorithms for Next-Generation Mobile Networks

**Project Abstract/Summary:**

The next-generation mobile networks will support more multimedia communications and provide mobile services every time and everywhere. Also, mobile handsets will be able to understand the behavior of mobile users to provide better quality of services and to support new services. The mobile handsets will make suggestions for different activities during the day according to the profiles of the mobile users. There is a need for a new generation of mobile data mining algorithms that can be used in the mobile environment to support these new services and to enhance the current services with the new integrated structure in mobile networks. The student did an excellent progress. He implemented a multi-threaded version of the PrefixSpan algorithm for Android smartphones and it was tested and evaluated using mobility data sets. Experimental results showed that for large datasets the multi-threaded implementation greatly outperformed the standard implementation. The student worked also on implementing an Android application that will collect various data types of mobile users.

**Project Dissemination:****Presentations:**

Zachary Lamb and Sherif Rashad (2014). Optimizing Next-Generation Mobile Networks using Frequent Sequential Pattern Mining, National Conference on Undergraduate Research (NCUR), April.

Zachary Lamb and Sherif Rashad (2013). Optimizing Next-Generation Mobile Networks using Frequent Sequential Pattern Mining, accepted for presentation and publication in the proceedings of the 9<sup>th</sup> International Joint Conferences on Computer, Information and Systems Sciences and Engineering (CISSE 13), December.

Zachary Lamb and Sherif Rashad (2013). Optimizing Next-Generation Mobile Networks using Frequent Sequential Pattern Mining, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Computer and Information Systems Section, Morehead, KY, November.

Zachary Lamb and Sherif Rashad (2014). Optimizing Next-Generation Mobile Networks using Frequent Sequential Pattern Mining, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

A scholarship from the University of Cincinnati to study for the CS Ph.D. program.

Third place winner in the undergraduate research competition at the 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Computer and Information Sciences Section.

**Post-Graduation Plans (Seniors only):**

The student was accepted to study for the CS Ph.D. program at the following universities:

University of New Mexico

University of North Dakota

University of Cincinnati

He accepted the offer from the University of Cincinnati and he was awarded a scholarship. He will start his study in the Ph.D. program in Fall, 2014.

**McGinnis, Michael****Major:**

Computer Science

**Faculty Mentor:**

Robin Blankenship/Doug Chatham

**Research/Project Title:**

The  $n+k$  Queens Problem (formerly "Studies in Separation in Graphs,")

**Project Abstract/Summary:**

The  $n+k$  Queens Problem requires the placing of  $n+k$  Queens and  $k$  Pawns on an  $n \times n$  chessboard in such a way that no two Queens attack each other. It has been proven that the problem has a solution when  $n > \max\{87+k, 25K\}$ . We attempt to obtain nice patterns and lower this bound on  $n$ . Our recent approach in this regard has been to create a Javascript program, called "Nobility," to efficiently solve any size board with any number of pawns.

**Project Dissemination:****Poster Presentation:**

McGinnis, Michael S., Sharma, Biswas, Blankenship, Robin and Chatham, Doug (2014). Composition of Solutions for the  $n+k$  Queens Separation Problem, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Sargent, Sam****Major:**

Physics

**Faculty 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 tings in the room and clean it. After that was complete The student 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 routine diagnostics on the power supply to test its responsiveness. Over the course of our investigation we solicited the help of Scott Hannahs, Associate Director for Instrumentation, 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 the student was responsible for keeping the laboratory journal, performing the tests, analyzing the results and cleaning! Because the student is a freshman 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 ours 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:****Presentation:**

N/A

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Sharma, Biswas****Major:**

Physics/Math

**Faculty Mentor:**

Robin Blankenship/Doug Chatham

**Research/Project Title:**

The  $n+k$  Queens Problem (formerly "Studies in Separation in Graphs")

**Project Abstract/Summary:**

The n+k Queens Problem required the placing of n+k Queens and k Pawns on an n x n chessboard in such a way that no two Queens attack each other. It has been proven that the problem has a solution when  $n > \max\{87+k, 25K\}$ . We attempt to obtain nice patterns and lower this bound on n. Our recent approach in this regard has been to create a Javascript program, called "Nobility," to efficiently solve any size board with any number of pawns.

**Project Dissemination:**

**Poster Presentation:**

McGinnis, Michael S., Sharma, Biswas, Blankenship, Robin and Chatham, Doug (2014). Composition of Solutions for the n+k Queens Separation Problem, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Wilhoite, Andrea**

**Major:**

Mathematics

**Faculty Mentor:**

Wilson Gonzalez-Espada

**Research/Project Title:**

Use of CAM Therapies Among College Students: Is There a Relation with Science Attitudes?

**Project Abstract/Summary:**

Dietary Supplements are products that contain a vitamin, mineral, herb, botanical, amino acid, or other substances. These products are very popular, despite being marketed using health claims that do not have to be approved or safety-tested by the United States Food and Drug Administration. Although there has been studies conducted regarding the use of dietary supplements at the national level, there is little research regarding their use among young adults, especially in rural Appalachia. This study aimed at addressing this gap in the literature by: (a) determining to what extent college students in Eastern Kentucky use dietary supplements, (b) quantifying what is the participants' overall attitude toward science, and (c) measuring whether there is a correlation between these variables. Since the claims made by supplement companies are not supported by science, it was hypothesized that the better the participants' perceptions toward science, the less frequently should be the use of supplements. It was found that participants have used an average of 3 dietary supplements, but some participants have used more than 10. A significant correlation was found between gender, use of supplements and attitudes toward science, that is, female participants with better attitudes toward science use more dietary supplements. This finding was opposite to the initial hypothesis. Generalizing these results, it is argued that college students from Appalachian Kentucky might not be aware of the lack of scientific evidence for dietary supplements, or might be misled into believing that dietary supplements are actual medicine by misinformation and marketing. An education and outreach campaign aimed at informing young adults, particularly females, about ineffective dietary supplements is suggested. This study was supported by Morehead State University's Undergraduate Research Fellowship Program and the Department of Mathematics, Computer Science, and Physics.

**Project Dissemination:**

**Oral Presentations:**

Knell, Janie L., Wilhoite, A.P. and Gonzalez-Espada, Wilson J. (2013). Use of CAM Therapies Among College Students in Eastern Kentucky: A Pilot Study, 99<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Morehead, Ky, November.

Wilhoite, Andrea P., Knell, Janie L. and Gonzalez-Espada, Wilson J. (2013). Dietary Supplements: Activities to Enhance Critical Thinking, Annual Conference of the Kentucky Science Teachers Association, Lexington, KY, November.

**Poster Presentations:**

Wilhoite, Andrea P. (2014). Use of CAM Therapies Among College Students in Eastern Kentucky: Is There a Relation with Attitudes Toward Science? Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Wilhoite, Andrea P. (2014). Use of CAM Therapies Among College Students in Eastern Kentucky: Is There a Relation with Attitudes Toward Science?, Southern Regional Honors Council Conference, Savannah, GA, March.

Wilhoite, Andrea P. (2014). Use of CAM Therapies Among College Students in Eastern Kentucky: Is There a Relation with Attitudes Toward Science?, Posters-at-the-Capitol, Frankfort, KY, February.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Plans to continue graduate studies in ophthalmology.

**DEPARTMENT OF PSYCHOLOGY**

**Abbott, Zachary**

**Major:**

Biomedical Science/Psychology

**Faculty Mentor:**

Ilsun White

**Research/Project Title:**

Muscarinic Receptors on Learned and Spontaneous Behavior in Rats

**Project Abstract/Summary:**

Muscarinic receptors, one of subtypes of acetylcholine receptors, are known to modulate learning and memory. This project examines the involvement of muscarinic receptors in learned behavior (simple and complex) and spontaneous behavior, using a rodent model. Rats are trained on simple and complex learning tasks, then they receive either saline or scopolamine (0.25 or 0.5 mg/kg), which block muscarinic receptors. Scopolamine is a drug in animal models of Alzheimer's disease. To compare drug effects on learned and unlearned behavior, scopolamine effects on spontaneous activity will be measured in the open-field. Guided by the results from initial experiments, reversibility of scopolamine-induced changes by specific drugs will be examined in subsequent experiments. The outcome from this project will dissociate specific role of muscarinic receptors in learned and unlearned behavior, and will expand our understanding of interactions between different neurotransmitter systems that are associated with Alzheimer's disease.

**Project Dissemination:**

**Presentations:**

Zachary Abbott, Josh Holbrook, Adam Roe, Chelsea Nolan, Ilsun M. White (2014). Scopolamine Effects on Stress-Induced Behavior, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Zachary Abbott, Chelsea N. Nolan, Jenna L. Huff and Ilsun M. White (2014). Scopolamine Negatively Impacts Stress-Induced Memory Deficits, KY Chapter of Neuroscience, University of Louisville, Louisville, KY, April.

Adam Roe, Josh Holbrook, Zachary Abbott and Ilsun M. White (2014). Physiological Stress on Acquisition of Simple Learning, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

**Daniels, Jordan**

**Major:**

Psychology

**Faculty Mentor:**

David Butz

**Research/Project Title:**

Examining Minority-Majority Biases in Prosocial Behavior

**Project Abstract/Summary:**

In the current study we conducted a real-world examination of ethnic bias in helping behavior. Ethnic bias was tested using the Lost E-mail technique in which helping behavior was measured by rate of return of an urgent e-mail detailing the status of a scholarship application. Participants (N=76) completed pretesting materials to assess their prejudice toward Hispanics before receiving a "lost e-mail" requiring a response within seven days. The name of the recipient implied that he/she was either of Hispanic or Caucasian origin. Although not statistically significant, the pattern of results was consistent with an ethnic bias, reflected in a higher rate of return of negative e-mails and fewer positive e-mails to Hispanic compared to Caucasian recipients. This pattern was particularly evident among individuals high in prejudice toward Hispanics. These findings have implications for the use of field-based assessments of bias in helping behavior.

**Project Dissemination:**

**Poster Presentations:**

Daniels, Jordan M., Butz, David A. and Preston, Andrew G. Ethnic Biases in Helping Behavior: A Relational-World Examination Using the Lost E-mail Technique, Kentucky Psychological Association Spring Academic Conference, Wilmore, KY, March, 2014 (also presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2014).

Preston, Andrew G., Butz, David A. and Daniels, Jordan M. (2014, March). Prejudice in C-major: Pro-Christian Bias in Music Evaluation, Kentucky Psychological Association Spring Academic Conference, Wilmore, KY, March, 2014 (also presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2014).

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

The student was accepted into M.S. General-Experimental Psychology programs at Morehead State University, Murray State University, and Indiana State University and will be attending Murray State University starting Fall 2014.

**Elmlinger, Daniel**

**Major:**

Psychology

**Faculty Mentor:**

Ilsun M. White and Wesley White

**Research/Project Title:**

Part I: Involvement of NMDA Receptors in Alcohol-Induced Behavioral Changes (Collaborative Project with Wesley White). Part II: The Effects of Repeated Treatment of Psychostimulants on Learning in Adolescent Rats.

**Project Abstract/Summary:**

This semester, the student worked on a collaborative research project (Part I) in the Behavioral Neuroscience Lab. Using an animal model, the student's research project will focus on longer-term effects of exposure to one psychostimulant, amphetamine, on behavior.

**Project Dissemination:**

**Poster Presentation:**

Elmlinger, Daniel, White, Ilsun M. and White, Wesley (2014). Effects of Dopamine D1 Antagonist on 24-hour Food Intake Following Amphetamine and Morphine in Rats, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

The student's future academic goal is to enter a Masters in Clinical Psychology. After a MA/MS degree, he plans to further seek a doctoral degree (PsyD or PhD) in clinical psychology.

**Justice, Natalie**

**Major:**

Psychology

**Faculty Mentor:**

Wesley White

**Research/Project Title:**

Evaluation of Learning Products Used to Teach Critical Thinking

**Project Abstract/Summary:**

This research will use an experimental approach to improve online lessons that have been developed to introduce undergraduates to a critical thinking framework. Participants will be recruited from the Psychology Department subject pool. Features of the lessons will be varied, and the impact of a manipulation on the rated interest value of a lesson and on performance on lesson quizzes will be assessed. Manipulated features might include the relevance of the illustrations, the mode of the content, the amount of feedback, the inclusion of "personality," and so forth. The lessons are part of a set of materials intended to provide critical thinking instruction. The set of materials will be used with incoming psychology majors in Fall 2013. The student will also assist with assessing the impact of this material on critical thinking.

**Project Dissemination:**

**Poster Presentation:**

Tatman, Makinzee K., Justice, Natalie G., Barber, Justin and White, Wesley (2014). Student-driven Improvement of Critical Thinking Lessons and Template-guided Development of Critical Thinking Skills, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Oral Presentation:**

Justice, Natalie G., Tatman, Makinzee K., Barber, Justin and White, Wesley (2014). Empirical Assessment of a Critical Thinking Process, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Student was accepted into the PhD program in School Psychology at the University of Cincinnati.

**Morris, Ashley**

**Major:**

Psychology

**Faculty Mentor:**

Shari Kidwell

**Research/Project Title:**

Aspects of Parental Mentalization and Their Association with Children's Well-Being

**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 are doing now that the children are entering their teens. Our past research has suggested that relatively few of our participating parents were securely attached themselves and that these insecure attachments and related problems may have often been "passed down" from parent to child. A core concept in this intergenerational pattern is the parents' ability to mentalize. Mentalization is the capacity to think about emotions, motives, and thoughts, both in oneself and in others (Bateman & Fonagy, 2006). If an individual's early experience is of insensitive caregiving, mentalization abilities are thought to be disrupted, leading to failure to fully and objectively understand oneself and others. And this has considerable implications for parenting. However, researchers have varied ways of assessing mentalization and there was no "best method" revealed in a recent symposium of experts.

Ashley's primary fellowship work involved rating mentalization from the "gold standard" Adult Attachment Interview (AAI: George, Kaplan & Main, 1985) using Fonagy's 10-point scale. This primarily measures parents' insight about their past relationships with their own parents and the impact on their functioning. In contrast, Meins' (1997) concept of mind-mindedness involves parents' understanding of their children's unique internal motivating states. Parent's "online, in-the-moment" statements made during parent-child tasks are classified and quantified. This is a very different way of assessing mentalizing than ratings of the AAI. Parents may have more ability to mentalize about the effect of events in their distant past, even very difficult experiences, than to understand why their children do what they do. Insecure dads are likely to have both fewer attuned (i.e., accurate) statements and more misattuned, distorted statements about their child's internal experience, particularly during heightened negative affect. Ashley continues to work with Dr. Kidwell to identify which of our tasks best taps parental mind-mindedness, and, indeed, whether this construct will be developmentally-salient and valid beyond infancy.

Our overall view is that mentalization is a key construct that explains why insecure attachments can have such a large effect on socioemotional functioning, even across generations. Since many of our parents have experienced not only caregiving insensitivity, but outright maltreatment, understanding the mechanisms through which this may impact their parenting is essential to devising effective interventions. Determining the relative advantages of varied measures of mentalization is a central aspect of these endeavors.

**Project Dissemination:**

**Poster Presentations:**

Morris, A., Kidwell, S.L., Katz, L., Sizemore, K. and Fugate, K. (2014). Parental Reflective Functioning in Association Associated with Parental Sensitivity, and Warmth, and Mentalization Tasks, Southeastern Psychological Associations Annual Conference, Nashville, TN.

Morris, A., Kidwell, S.L., Katz, L., Sizemore, K. and Fugate, K. (2014). Parental Reflective Functioning in Association Associated with Parental Sensitivity, and Warmth, and Mentalization Tasks, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

Katz, L., Morris, A., Kidwell, S.L. and Sizemore, K.M. (2014). Parental Reflective Functioning is Associated with Their Sensitivity and Warmth in Parent-child Interaction Tasks, Kentucky Academy of Science's Annual Conference, Morehead, KY.

**Awards and/or Honors:**

Southeast Psychological Association Student Travel Award.

**Post-Graduation Plans (Seniors only):**

Student will attend Morehead State University's Clinical Psychology M.S. Program, where she will continue and expand upon this research topic.

**Nolan, Chelsea**

**Major:**

Pre Med

**Faculty Mentor:**

Ilsun White

**Research/Project Title:**

Sex Differences in the Effects of Repeated Exposure to Psychostimulants on Learning

**Project Abstract/Summary:**

Using a rodent model, this project examined sex differences in the effects of chronic use of psychostimulants on learning. This semester, Spring 2014, the effects of moderate dose of chronic METH on simple learning and memory were examined. Repeated METH differentially impaired simple learning in males and females. Guided by these initial results, subsequent experiments will examine the effects of bath salts (mephedrone) on performance in learning and reversibility of drug-induced impairment by specific drugs. The outcome from this project will expand our understanding of learning/cognitive deficits associated with drug abuse and addiction.

**Project Dissemination:**

**Poster Presentations:**

Chelsea N. Nolan, Jenna L. Huff and Ilsun M. White (2014). Repeated Methamphetamine (METH) and Morphine Impairs Learning in Adolescent Rats. University of Louisville, Louisville, KY, April.

Jenna L. Huff, Chelsea N. Nolan and Ilsun M. White (2014). Effects of Physiological Stress on Learning in Males and Females, Kentucky Chapter of Neuroscience, University of Louisville, Louisville, KY, April.

Zachary Abbott\*, Chelsea N. Nolan, Jenna L. Huff and Ilsun M. White (2014). Scopolamine Negatively Impacts Stress-Induced Memory Deficits, University of Louisville, Louisville, KY, April

Zachary Abbott\*, Josh Holbrook, Adam Roe, Chelsea Nolan and Ilsun M. White (2014). Scopolamine Effects on Stress-Induced Behavior, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A.

**Post-Graduation Plans (Seniors only):**

Currently, the student is a premed, majoring in Biomedical Sciences. Her post-graduate goal is to become a MD. This research experience will expand her knowledge in drugs effects on brain and behavior, and will further help in pursuing her academic goals.

**Preston, Andrew**

**Major:**

Psychology

**Faculty Mentor:**

David Butz

**Research/Project Title:**

Religion-Based Biases in Evaluation of Music

**Project Abstract/Summary:**

The current study expands upon recent work on pro-Christian biases by examining the implications of such biases in the context of music perception. Participants (N = 68) completed a measure of attitudes towards Christian and non-Christian groups and then listened to music by three ostensible student composers, one of which was described as either Christian or athiest. They rated the music and recommended funding for each composer. Consistent with the pro-Christian bias, participants were significantly more likely to recommend funding for the Christian compared to athiest composer. This pattern occurred regardless of participants' religious identification or attitudes towards Christians and non-Christian groups. Participants' perception of the Christian versus athiest compositions did not differ, indicating a difference only in willingness to help these perceived groups. The findings were discussed in

terms of furthering research on pro-Christian biases and developing a deeper understanding of how pro-Christian biases may impact American society and media.

**Project Dissemination:**

**Presentations:**

Preston, Andrew G., Butz, David A. and Daniels, Jordan M. (2014). Prejudice in C-Major: Pro-Christian Biases in Music Evaluation, Kentucky Psychological Association Spring Academic Conference, Wilmore, KY, (also presented at the Celebration of Student Scholarship, Morehead State University, Morehead, KY, April).

Daniels, Jordan M., Butz, David A. and Preston, Andrew G. (2014). Ethnic Biases in Helping Behavior: A Real-World Examination Using the Lost E-mail Technique, Kentucky Psychological Association Spring Academic Conference, Wilmore, KY (also 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

**Secord, Laura**

**Major:**

Psychology

**Faculty Mentor:**

Laurie Couch

**Research/Project Title:**

1. Predicting Success in Long-Distance vs. Face-to-Face Relationships
2. Assessment of Breakup Experiences

**Project Abstract/Summary:**

The student was a first author on conference presentations based on the "Predicting success in long-distance vs. face-to-face relationships" study. She analyzed the data via SPSS, completed a literature review, prepared abstracts for conference submissions, and delivered the presentation. In addition, she helped design and prepare the project entitled "Assessment of Breakup Experiences," collected data for it, and wrote a scoring protocol for the project in SPSS.

Here are the abstracts for Laura's conference presentations:

1. The congruency hypothesis: Testing the effects of sociotropy and autonomy after romantic betrayal. Laura J. Secord, Nolan R. Williams, Laurie L. Couch, and David R. Olson, Department of Psychology, Morehead State University, Morehead, KY, 40351. According to Beck's (1983) congruency hypothesis, the trait of sociotropy (i.e. excessive investment in personal relationships) is a vulnerability factor for psychopathology after interpersonal disruptions, whereas the personality trait of autonomy (i.e., self-reliance) is a vulnerability factor after instances of thwarted achievement. Although many studies support the congruency hypothesis (e.g., Coyne & Wiffen, 1995; Robins 1995), especially for sociotropy, the interpersonal disruptions that are investigated typically involve negative interactions with strangers or relatively minor social network interactions. Thus, the present study sought to test the predictions of the hypothesis in relation to romantic betrayal because it is a more significant interpersonal disruption and it occurs within an important, established relationship. It was predicted that individuals who are highly sociotropic would report greater post-betrayal psychopathology than others, but because betrayal typically is not perceived as an achievement-oriented event, no links between to post-betrayal mental health outcomes and autonomy were expected. To test these expectations, victims of betrayal completed a measure of sociotropy-autonomy and measures of the depression, anxiety, trauma, and somatic symptoms they recalled from the time soon after being betrayed. Results from a two-way MANOVA supported our predictions, multivariate  $F(22,158) = 1.94, p < .05$ . A main effect for sociotropy was observed, where those high in sociotropy recalled more significantly more anxiety, depression, and trauma symptoms after betrayal than others, but autonomy was unrelated to post-betrayal psychological effects and no significant interaction between sociotropy and autonomy was observed. (presented at the Kentucky Academy of Science in Morehead, KY and the Southeastern Psychological Association in Nashville, TN).
2. Coping with loneliness for those sensitive to rejection, Laura J. Secord, Nolan R. Williams, and Laurie L. Couch, Morehead State University. Our study compared those who were high vs. moderate vs. low in rejection sensitivity to determine if there were differences in how the groups cope when feeling lonely. We surveyed 286 student participants (54% females/46% males; mean age=19.5 years) using the Rejection Sensitivity Questionnaire (Downey & Feldman, 1996) and the COPE Inventory (Carver, Scheier, & Weintraub, 1989), which had been

focused on coping with loneliness. A multivariate analysis of variance, using rejection sensitivity (low vs. medium vs high) as the independent variable and different coping methods as dependent variables, was conducted to test for sensitivity-related differences. Results showed that those highly sensitive to rejection tend to use more venting, denial, substance use/abuse, and behavioral disengagement than some others when coping with loneliness and they also tend to utilize less planning and positive reinterpretation for growth than others when dealing with lonely experiences. (presented at the Kentucky Psychological Association in Wilmore, KY, and the Morehead State University Celebration of Student Scholarship in Morehead, KY, won a Certificate of Merit).

**Project Dissemination:**

**Presentation:**

Secord, L.J., Williams, N.R., Couch, L.L. and Olson, D.R. (2014). The Congruency Hypothesis: Testing the Effects of Sociotrophy and Autonomy after Romantic Betrayal, Southeastern Psychological Association, Nashville, TN (also presented at the Kentucky Academy of Science, Morehead, KY), March.

Secord L.J., Williams, N.R. and Couch, L.L (2014). Coping with Loneliness for Those Sensitive to Rejection, Kentucky Psychological Association, Wilmore, KY, March. (also presented at the Morehead State University Celebration of Student Scholarship, Morehead, KY) April.

**Awards and/or Honors:**

Certificate of merit for poster presentation in the College of Science and Technology, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Post-Graduation Plans (Seniors only):**

N/A

**Tatman, Makinzee**

**Major:**

Psychology

**Faculty Mentor:**

Wesley White

**Research/Project Title:**

Evaluation of Learning Products Used to Teach Critical Thinking

**Project Abstract/Summary:**

This research will use an experimental approach to improve online lessons that have been developed to introduce undergraduates to a critical thinking framework. Participants will be recruited from the Psychology department subject pool. Features of the lessons will be varied, and the impact of a manipulation on the rated interest value of a lesson and on performance on lesson quizzes will be assessed. Manipulated features might include the relevance of the illustrations, the mode of the content, the amount of feedback, the inclusion of "personality," and so forth. The lessons are part of a set of materials intended to provide critical thinking instruction. The set of materials will be used with incoming psychology majors in Fall 2013. The student will also assist with assessing the impact of this material on critical thinking.

**Project Dissemination:**

**Poster Presentation:**

Tatman, Makinzee K. J., Justice, Natalie G., Barber, Justin and White, Wesley (2014). Student-driven Improvement of Critical Thinking Lessons and Template-Guided Development of Critical Thinking Skills, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Oral Presentation:**

Justice, Natalie G., Tatman, Makinzee K., Barber, Justin and White, Wesley (2014). Empirical Assessment of a Critical Thinking Process, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

Accepted into the master's degree program in Industrial-Organizational Psychology at Northern Kentucky University.

**Williams, Nolan**

**Major:**

Psychology

**Faculty Mentor:**

Laurie Couch

**Research/Project Title:**

1. Predicting Success in Long-distance vs. Face-to-face Relationships
2. Assessment of Breakup Experiences

**Project Abstract/Summary:**

The student was a second author on conference presentations based on the “Predicting Success in Long-distance vs. Face-to-face Relationship” study. He collected data on the project via SurveyMonkey, analyzed the data via SPSS, completed a literature review, prepared abstracts for conference submissions, and delivered the presentation. In addition, he designed and prepared the project entitled “Assessment of Breakup Experiences,” collected data for it, and wrote a scoring protocol for the project in SPSS.

Abstracts for student’s conference presentations:

1. The congruency hypothesis: Testing the effects of sociotropy and autonomy after romantic betrayal. Laura J. Secord\*, Nolan R. Williams, Laurie L. Couch and David R. Olson, Department of Psychology, Morehead State University, Morehead, KY, 40351. According to Beck’s (1983) congruency hypothesis, the trait of sociotropy (i.e. excessive investment in personal relationships) is a vulnerability factor after instances of thwarted achievement. Although many studies support the congruency hypothesis (e.g., Coyne & Wiffen, 1995; Robins 1995), especially for sociotropy, the interpersonal disruptions that are investigated typically involve negative interactions with strangers or relatively minor social network interactions. Thus, the present study sought to test the predictions of the hypothesis in relation to romantic betrayal, because it is more significant interpersonal disruption and it occurs within an important, established relationship. It was predicted that individuals who are highly sociotropic would report greater post-betrayal psychopathology than others, but because betrayal typically is not perceived as an achievement-oriented event, no links between to post-betrayal mental health outcomes and autonomy were expected. To test these expectations, victims of betrayal completed a measure of sociotropy-autonomy and measures of the depression, anxiety, trauma, and somatic symptoms they recalled from the time soon after being betrayed. Results from a two way MANOVA supported our predictions, multivariate  $F(22, 158) = 1.94, p < .05$ . A main effect for sociotropy was observed, where those high in sociotropy recalled more significantly more anxiety, depression, and trauma symptoms after betrayal than others, but autonomy was unrelated to post-betrayal psychological effects and no significant interaction between sociotropy and autonomy was observed. (presented at the Kentucky Academy of Science in Morehead, KY, and the Southeastern Psychological Association in Nashville, TN).
2. The Green-Eyed Monster: Jealousy’s Link to Relational Self-Efficacy and Emotional Intelligence, Macy T. Kootz, Nolan R. Williams and Laurie L. Couch, Morehead State University. Links between jealousy and beliefs about one’s level of relational skill were assessed through an online survey of 244 college females in romantic relationships. Based on previous literature, it has hypothesized those high in jealousy would be less rationally skilled as compared to those low in jealousy. To test this, first a MANOVA was conducted comparing high vs. moderate vs. low jealousy groups on three types of relational self-efficacy: mutuality (i.e., being a couple), differentiation (i.e., being an individual in the relationship), and emotional control. Results revealed that those low in jealousy believed they were better at emotional control and being an individual/letting the partner be an individual within their relationship. Next, an ANOVA compared the jealousy groups on emotional intelligence and results showed that those low in jealousy were more emotionally intelligent than those with high jealousy. These results will be discussed in terms of implications of relationship counseling. (presented at the Kentucky Psychological Association in Wilmore, KY, and the Morehead State University Celebration of Student Scholarship in Morehead, KY and won 2<sup>nd</sup> place in the Ernst Meyer undergraduate poster competition and a Certificate of Exceptional Merit).
3. Coping with loneliness for those sensitive to rejection, Laura J. Secord, Nolan R. Williams and Laurie L. Couch, Morehead State University. Our study compared those who were high vs. moderate vs. low in rejection sensitivity to determine if there were differences in how the groups cope when feeling lonely. We surveyed 286 student participants (54% female/46% males; mean age=19.5 years) using a Rejection Sensitivity Questionnaire (Downey & Feldman, 1996) and the COPE Inventory (Carver, Scheier, & Weintraub, 1989), which had been focused on coping with loneliness. A multivariate analysis of variance, using rejection sensitivity (low vs. medium vs. high) as the independent variable and different coping methods as dependent variables, was conducted to test for sensitivity-related differences. Results showed that those highly sensitive to rejection tend to use more venting, denial, substance use/abuse, and behavioral disengagement than some others when coping with loneliness, and they also tend to utilize less planning and positive reinterpretation for growth than others when dealing with lonely experiences. (presented at the Kentucky Psychological Association in Wilmore, KY, and Morehead State University Celebration of Student Scholarship, Morehead, KY, and won a Certificate of Merit).

**Project Dissemination:****Presentations:**

As noted above, Nolan gave three presentations during 2013-14, but presented each twice. Here are the references for those presentations:

Secord, L.J., Williams, N.R., Couch, L.L. and Olson, D.R. (2014). The Congruency Hypothesis: Testing the Effects of Sociotropy and Autonomy After Romantic Betrayal, Southeastern Psychological Association, Nashville, TN. (also presented at the Kentucky Academy of Science, Morehaed, KY).

Kootz, M.T., Williams, N.R. and Couch, L.L. (2014). The Green-Eyed Monster: Jealousy's Link to Relational Self-Efficacy and Emotional Intelligence. Kentucky Psychological Association, Wilmore, KY. (won 2<sup>nd</sup> place in the Ernst Meyer Undergraduate Research Poster Competition; also presented at the Morehead State University Celebration of Student Scholarship in Morehead, KY, where it won the College of Science and Technology's Certificate of Exceptional Merit for poster presentation).

Secord, L.J., Williams, N.R. and Couch, L.L. (2014). Coping with Loneliness for Those Sensitive to Rejection, Kentucky Psychological Association, Wilmore, KY. (also presented at the Morehead State University Celebration of Student Scholarship where it won a College of Science and Technology Certificate of Merit for poster presentation).

**Awards and/or Honors:**

2<sup>nd</sup> Place in the 2014 Ernst Meyer Undergraduate Research Poster Competition, Kentucky Psychological Association. Certificate of Exceptional Merit for poster presentation in the College of Science and Technology (2014).

Certificate of Merit for poster presentation in the College of Science and Technology (2014).

**Post-Graduation Plans (Seniors only):**

Student was admitted to three master's programs in clinical psychology. He will attend one at the University of Louisiana at Lafayette (on a full scholarship).

## **ACADEMIC AFFAIRS**

### ***CAMDEN CARROLL LIBRARY***

**Kozar, Carter****Major:**

Undecided

**Faculty Mentor:**

Karla Aleman

**Research/Project Title:**

Library Patron Use of Literature and Language Material at Camden-Carroll Library: A Collection Assessment

**Project Abstract/Summary:**

As the modern world progresses to an increasingly digitized information society, communication methods, tools, and formats are constantly changing. The Library owns and licenses a wide variety of such material, including books, journals, magazines, newspapers, videos, audio content, databases, eBooks, and much more. Focusing a spotlight on the literature and language material in the Library, Ms. Aleman aims to assess the content, condition, and use of these library materials over time. Preliminary results have shown that printed library material circulation is decreasing, the average age of the material is several decades old, but that the quality of the material is still unique and may highlight the information interests of the area.

**Project Dissemination:****Presentation:**

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

**Awards and/or Honors:**

N/A

**Post-Graduation Plans (Seniors only):**

N/A

## **Trenary, Dakota**

### **Major:**

Secondary English Education

### **Faculty Mentor:**

Karla Aleman

### **Research/Project Title:**

Library Patron Use of Literature and Language Material at Camden-Carroll Library: A Collection Assessment

### **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 can be a difficult and time consuming task. In order to better connect patrons to the Library's resources and make more informed financial decisions, one librarian at Morehead State University began an in-depth item-level collection assessment of the Library's literature and language collections. She did not do it alone. Partnering with the University's Honors Program, this librarian worked with two undergraduate students to collect data and spot trends. The added perspective provided by the students has proven to be instrumental in discovering the collections' hidden virtues. Join this librarian and her two partners for an exploration of their surprising discoveries, an overview of the project design, and tips for setting up a similar project at your library.

### **Project Dissemination:**

#### **Presentations:**

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

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

### **Awards and/or Honors:**

Caudill College of Arts, Humanities, and Social Sciences Exceptional Merit Award, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April.

### **Post-Graduation Plans (Seniors only):**

N/A

## **Matthew Tolliver**

### **Major:**

Criminology

### **Faculty Mentor:**

Bernadette Barton

### **Research/Project Title:**

Get Ready to Grindr: Technology and the Evolution of Gay Male Culture

### **Project Abstract/Summary:**

From the bravery of the Stonewall riots and the courage of individuals like Harvey Milk, the modern Gay Rights Movement was born. The struggle for equality continues today with national and global attention focused on the rights of the LGBT community. At the same time, gay people still face homophobia, especially in more politically and religiously conservative regions like the Bible Belt. Still subject to censure, stigma and hostility from some members of mainstream society, gay men use a variety of creative means to find one another, including social media and smart phone technologies. This presentation explores gay male usage of the smart phone application "Grindr." Through observation and audio-taped interviews with 10 gay men who use Grindr, this project seeks to understand how emerging technologies shape gay male experience. Drawing on sociological theories of gender, this study will analyze participants' insights into and usage of Grindr. In particular, the project unpacks elements such as top privilege, "heteroization" of gay relationships, sexual health, the toxic closet hermeneutic, the standard of gay sex, and the disconnect of a subculture.

### **Project Dissemination:**

#### **Presentations:**

Project was submitted and accepted at the 2014 NCUR conference, but the student resigned his fellowship.

### **Awards and/or Honors:**

N/A

### **Post-Graduation Plans (Seniors only):**

N/A

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