

**Annual Report  
of  
Undergraduate Research Fellows**

**August, 2009 – May, 2010**

**Morehead State University**

# ANNUAL REPORT OF UNDERGRADUATE RESEARCH FELLOWS

August, 2009 to May, 2010

## COLLEGE OF BUSINESS

### *SCHOOL OF BUSINESS ADMINISTRATION*

### *DEPARTMENT OF ACCOUNTING, ECONOMICS, AND FINANCE*

#### **AMIR AHMADI**

**Major:**

Finance/Math

**Faculty Mentor:**

Thomas Creahan

**Research/Project Title:**

Using Mathematics to Develop Animations and Demonstrations to Facilitate Learning Economic and Mathematical Concepts

**Project Abstract/Summary:**

This Undergraduate Fellowship has provided Mr. Amir Ahmadi the opportunity to learn Mathematica and to work with Dr. Tom Creahan in his ongoing research, including developing computer applications to demonstrate economic concepts. The research utilizes Mathematica, a mathematical and technical computing program.

Dr. Creahan has used Mathematica to generate graphics for exposition or pedagogical uses. The latest version of Mathematica offers a significant new feature that allows variables to be manipulated by several mechanisms, for example, by slider bars, with real time continuous rendering of the graphics. This new functionality can be manipulated with Mathematica Player. Expository applications of the programs can be especially useful in teaching courses with mathematical content, such as ECON/MNGT 300, Quantitative Methods in Business and Economics. This fellowship has enabled Mr. Ahmadi to develop expertise in Mathematica. These skills are valuable in his own academic development as well as providing input into this project.

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

**Project Dissemination:**

**Poster Presentation:**

Ahmadi, Amir and Ahmadi, Dr. S. Ali, "An Empirical Test of Simon Kuznets Curve Applied to Environmental Economics: A Multiple Regression Approach," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

Mr. Ahmadi and Dr. Creahan presented their work at the Kentucky Economic Association Conference. They have submitted, or are preparing for submission, several of their demonstrations to the Mathematica Demonstrations Project. In addition, Dr. Creahan has used several of the instructional modules in the classroom.

**Awards and/or Honors:**

N/A

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

N/A

## **MICHAEL FITZNER**

### **Major:**

Accounting

### **Faculty Mentor:**

Ali Ahmadi

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

Determinants of Premature Death Due to Infectious Disease in Kentucky

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

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

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

### **Project Dissemination:**

#### **Oral Presentations:**

The paper will be submitted for presentation in the Annual Conference of Missouri Valley Economic Association in October 2010, as well as the Council on Undergraduate Research conference.

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

Phi Beta Lambda State-Level Competitions – First place in Accounting Principles (April, 2010)

Phi Beta Lambda – State-Level Competitions – First place in Statistical Analysis Competition

Idea State U! – Business Concept Competition among all KY Universities – Second place Business Concept Team member.

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

Michael will graduate in Fall 2010. He has applied for a research internship over the summer. He will be looking for a research or accounting position during the summer and fall.

## ***DEPARTMENT OF MANAGEMENT AND MARKETING***

## **ERICA BELMONT**

### **Major:**

Management

### **Faculty Mentor:**

Janet Ratliff

### **Research/Project Titles:**

1. The Economics of Local Entertainment: a Case Study of Bingo
2. Regional Engagement Grant – An Entrepreneurial Experience
3. AIG Grant – Chartis Grant
4. Business in a Bag National Presentation of Best Practices
5. Students in Free Enterprise: A Year in Review

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

1. This case study examines the inflows and outflows of cash at a local bingo hall. As a result, this case study will provide a better understanding of the role bingo plays within a community for recreation and community support for other types of youth activities. It will highlight the financial outlet that charitable gaming plays in the lives of many individuals throughout our state. Descriptive statistics will establish a basic demographic profile of players to better understand who plays bingo, why they play, and what factors might contribute to playing the game.
2. I wrote and was awarded a \$400 grant for the implementation of an entrepreneurial experience (creating a real market place for students in grades 3-5 in a classroom setting where students learn to be entrepreneurs and consumers). This involved 350 students in the public school system and illustrated an increase in knowledge of 10% overall and 40 out of 64 mini businesses succeeded and paid their loan back in full.
3. In years past, I assisted in creating the survey instrument used to gauge knowledge of financial information. I currently maintain the data to support the AIG grant for \$750 this year. This year more than 498 college students participated in this educational effort to increase knowledge and awareness of personal finance in order to succeed (each year freshmen and seniors serve as the participants). There was a 50.4% increase in knowledge on average for overall program implementation.

4. I along with my mentor presented best practices in teaching economics to primary and intermediate students at the National Conference for Economics Education. The program presented involves coordination and cooperation of two classes simultaneously. One primary class listens to a story about spending and saving and earns an income by answering questions while an intermediate class actively engages in establishing businesses. Intermediate concepts covered include: borrowing, credit, interest, advertising, revenues, expenses, customer service, competition, and profits. The primary class uses their income to purchase items from the intermediate class. Discussions and debriefing in each class complete the program.
5. Due to involvement in Students In Free Enterprise (SIFE), SIFE being recipient of student organization of the year for civic engagement, and the two grants received for SIFE (as part of my undergraduate fellowship work previously mentioned in number 2 & 3 above), I was asked to prepare and present a poster at the Kentucky Engagement Conference held in Erlanger, Kentucky on November 20, 2009.

**Project Dissemination:**

**Posters:**

- Ratliff, J., & Belmont E. "The Economics of Local Entertainment: A Case Study of Bingo." Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.
- Belmont, E. & Bradley, S. "Students In Free Enterprise: A Year in Review." Kentucky Engagement Conference: Engaged to be Educated, Erlanger, KY, November, 2009.

**Oral Presentation:**

- Ratliff, J., & Belmont, E. "Business in a Bag," National Council for Economic Education Annual Conference. Washington, D.C., October, 2010.

**Grants:**

- Belmont, E. Nickell, R. & Ratliff, J. (2009, October). "An Entrepreneurial Experience," Center for Regional Engagement, Morehead State University - \$400.
- Ratliff, J. & Belmont, E. (2009-2010). "AIG Financial Awareness," Students in Free Enterprise, Springfield MO. - \$2,250.

**Awards and/or Honors:**

- 2010 SIFE Leadership Award (National recognition as well as local recognition, in part due to the excellent work necessary to retain grant funding and hours of service).

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

- Student is actively applying and interviewing to obtain gainful employment upon graduation.

**SARA BRADLEY**

**Major:**

Management

**Faculty Mentor:**

Brian Whitaker

**Research/Project Title:**

1. Exploring the Relationship Between Business Education and Moral Imagination and Moral Decision Making
2. Individual and Contextual Influences on Moral Imagination in the Workplace

**Project Abstract/Summary:**

1. Given the plethora of recent corporate scandals, critics have argued that exposure to business curriculum negatively impacts students' moral decision-making processes. To address these concerns, this study examined the relationships between business curriculum exposure, moral imagination, and several types of ethical decision making. Data was obtained from a representative sample of 92 employed business students from freshman to the MBA level. Results indicate that business curriculum exposure positively influence moral imagination even after controlling for important demographic, individual difference, and contextual variables. However, we found no significant effect for business curriculum exposure on ethical decision-making. Results point to the need to further examine links between ethics pedagogy, students' moral development, and ethical decision-making.
2. Why do some employees make such bad moral decisions? This question has seemingly dominated the field of business ethics for years without yielding a clear solution (e.g. Jordan, 2005; Kellerman, 2004). Yet in addition to understanding what goes wrong with some employee's ethical decision making, it is just as important to ask why others make good moral decisions which result in mutual benefit to the company and wider society (Bright, Fry, and Cooperrider, 2006). The answer to this question may provide important insights for how we better foster organizations that 'dare to care'. Developing a better understanding of the antecedents of moral imagination and its relationship to mutually beneficial decision-making in business has important implications for both organizational practitioners and business ethics researchers. To these ends, this study seeks to shed empirical light on the individual and contextual influences of moral imagination in the workplace.

**Project Dissemination:****Publications:**

Whitaker, Brian G., Godwin, Lindsey N., and Bradley, Sara E. (2010). "Exploring the Relationship Between Business Education and Moral Imagination and Moral Decision Making." To be published in the Proceedings for the Society for Business Ethics International Conference, Montreal, Canada.

Whitaker, Brian G., Godwin, Lindsey N., and Bradley, Sara E. (2010). "Individual and Contextual Influences on Moral Imagination in the Workplace." to be published in the Proceedings for the Academy of Management International Conference, Montreal, Canada.

**Poster Presentation:**

Bradley, Sara B. and Professor Brian Whitaker. (2010, April). "Moral Imagination and Business Curriculum Exposure," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2010.

**Awards and/or Honors:**

N/A

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

N/A

**BRITTANY HACKWORTH****Major:**

Marketing

**Faculty Mentor:**

Michelle Kunz

**Research/Project Title:**

What's the Buzz on Top Retailers: What is being Posted on Social Media Networks?

**Project Abstract/Summary:**

This research project involved search, monitoring and coding posts by or about top-rated retailers on the major social media networks. This research is a follow-up of the initial research conducted by the faculty mentor during the spring of 2009. Data was collected from the first week of September, 2009, through the first week of January, 2010. Additional research included a review of literature to investigate the current status of social media networks, along with how retailers were using the new media. Additionally, a review of literature resulted in another paper analyzing how social media is being used by the health care industry and health care professionals.

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

Kunz, Michelle B. and Hackworth, Brittany. (2010). "Fans, Friends and Followers: Social Media in the Retailers' Marketing Mix." Marketing Management Association Annual International Conference, Chicago, IL, March, 2010.

**Publications :**

Kunz, Michelle B. and Hackworth, Brittany. (2010). "Fans, Friends and Followers: Social Media in the Retailers' Marketing Mix," In D. P. Roy and R. Yelkur, (Eds.) Innovative Marketing in a Challenging Global Economy, Proceedings of the Marketing Management Association, 79-83.

Kunz, Michelle B. and Hackworth, Brittany. (2010). "Are Consumers Following Retailers to Social Networks?" Academy of Marketing Studies Journal, forthcoming.

Hackworth, Brittany and Kunz, Michelle B. (2010). "Health Care and Social Media: Building Relationships via Social Networks," Academy of Health Care Management Journal, forthcoming.

**Published Abstracts:**

Hackworth, Brittany and Kunz, Michelle B. (2010). "Tweet Yourself to Better Health," Academy of Health Care Management Proceedings Allied Academies International Conference, (7) 1, 12.

Kunz, Michelle B. and Hackworth, Brittany. (2010). "Social Networks Help Retailers Deliver Holiday Cheer in 2009," Academy of Marketing Studies Proceedings Allied Academies International Conference, (15), 1, 39.

**Poster Presentations:**

Hackworth, Brittany and Kunz, Michelle B. (2010 April). "Healthcare and Social Media: Two-way Communication," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

Hackworth, Brittany and Kunz, Michelle B. (2010 April). "Delivering Holiday Cheer with Social Media Networks," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

"Fans, Friends and Followers: Social Media in the Retailers' Marketing Mix," received Best Paper in Track Award at the Marketing Management Association Annual Conference, March, 2009, Chicago, IL.

"Are Consumers Following Retailers to Social Networks?" and "Health Care and Social Media: Building Relationships via Social Networks," both received Distinguished Research Awards at the Allied Academies International Conference, New Orleans, LA, April, 2009.

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

Brittany is currently interviewing with several possible employers, but is also considering graduate school/MBA at the University of Kentucky, after May, 2010, graduation.

**AMY APPLEMAN****Major:**

Accounting

**Faculty Mentor:**

Ahmad Hassan

**Research/Project Title:**

Toward a Social Capital Theory of Family Firm's Competitive Behavior

**Project Abstract/Summary:**

There is a growing recognition of family firms' contribution to the global economy and interest in what they can teach the rest of the business world. Family businesses dominate the economies in most nations in terms of the number of enterprises. Therefore, a basic understanding of how organizational ownership influences competitive behavior is of paramount importance. In particular, building upon social capital perspective, this study seeks to advance research in family business by delineating the impact of social capital on patterns of competitive actions using existing theories to argue that social capital acts as a mechanism for escalating the aggressiveness of competitive actions launched by family firms. Since there is a precedent for treating social capital as resources upon which the firm can draw in its competitive actions, the social capital perspective, with its focus on relational and structural embeddedness, allows us to explicitly model how familiness influences competitive behavior. Hence, the use of the social capital perspective helps advance research in family firms to address the prior calls for developing a better understanding of the concept of familiness and the competitive phenomena. This study is still theoretical.

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

Appelman, Amy E. and Professor, Ahmad Hassan. (2010, January). "Toward a Social Capital Theory of Family Firm's Competitive Behavior." Posters-at-the-Capitol, Frankfort, KY, January, 2010.

Appelman, Amy E. and Professor, Ahmad Hassan. (2010, April). "Toward a Social Capital Theory of Family Firm's Competitive Behavior." Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Oral Presentation:**

Appelman, Amy E. and Professor, Ahmad Hassan. (2010, April). "Toward a Social Capital Theory of Family Firm's Competitive Behavior." Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**STEPHANIE TEATER****Major:**

Sport Management

**Faculty Mentor:**

Steve Chen

**Research/Project Title:**

Perceptions of Students, Faculty, and Administrators about Pregame Tailgate Parties at the Kentucky Regional University

**Project Abstract/Summary:**

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

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

Teater, S., & Chen, S. (2010). "Perceptions of Students, Faculty, and Administrators about Pregame Tailgate Parties at a Kentucky Regional University." Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**SCHOOL OF PUBLIC AFFAIRS**

**DEPARTMENT OF GOVERNMENT AND REGIONAL ANALYSIS**

**ASHLEY ADKINS**

**Major:**

Government/IRAPP

**Faculty Mentor:**

Paul Steele

**Research/Project Title:**

Factors Influencing the Growth and Management of Prison Populations in Kentucky: Implications for Public Policy and Practice

**Project Abstract/Summary:**

The research investigates trends in prison population growth in Kentucky. Specifically it examines the influence of community demographics and public opinion, election results, legislation, prosecutorial practices, sentencing structures, and corrections policies and procedures on the prison sentence, both currently and over the past three decades. The current approach is modeled after Spelman's (2008) econometric analysis of national trends, but we expect that the outcomes will vary greatly due to the fact that most crime and prison populations are state-specific and subject to social and legal trends in that state. When completed, the research will provide recommendations for population management in Kentucky to the Cabinet for Justice and Public Safety, and the Task Force on Sentencing and Policy. While substantial progress has been made, the project has been slowed by difficulties in accessing State-level data. Ironically, Spelman had more success accessing national data than we have had in Kentucky, but at this point the data set containing over 40 variables is only lacking one item for its completion. Second, the research has been slowed by the fact that Ms. Adkins was selected as a research fellow for the Legislative Research Commission for the Spring semester. In some ways, this facilitated the research in that she was able to access research staff of the State library for this project. However, even though she spent most weekends working on the project in Morehead, we made less progress than originally planned.

**Project Dissemination:**

Earlier versions of this research were presented at the Posters at the Capitol in Frankfort, and at the Posters-on-the-Hill in Washington DC, in conjunction with the Council on Undergraduate Research. We hope to produce additional professional products by Fall 2010.

**Awards and/or Honors:**

Ashley is the first (and only) MSU student to present at Posters-on-the-Hill in Washington, DC. Recipient of a Legislative Research Commission fellowship.

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

Attending a law school that offers a concurrent degree in Public Affairs, then a subsequent career in international policy.

**REBEKAH JACKSON**

**Major:**

Government/Paralegal Studies

**Faculty Mentor:**

William Green

**Research/Project Title:**

Granholm v. Heald and Federal Constitutional Conflicts Over State Regulation of the Direct Shipment of Wine

**Project Abstract/Summary:**

In Granholm v. Heald (2005), the U.S. Supreme Court declared unconstitutional state alcoholic beverage control laws which discriminated against direct to consumer sales by out-of-state wineries. Professor Green's research takes a national perspective on the post-Granholm state legislation enacted the initiative of the state alcoholic beverage control subsystem, the federal constitutional questions these statutes have raised, and the litigation initiated by the wine advocacy coalition. Ms. Jackson's research examines the Kentucky legislative response to Granholm, the litigation of the constitutionality of Kentucky beverage statutes, and the states continuing discrimination against out-of-state small wineries. Together this research argues that conflicting federal court decisions on the direct shipment of wine are likely to lead the Supreme Court to revisit its Granholm decision.

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

Rebekah Jackson, "The Supreme Court and State Regulation of Wine: Kentucky's Response to Granholm v. Heald (2005)." Kentucky Political Science Association 2010 Meeting, Murray, KY, March.

Rebekah Jackson, "Balkanizing the Dommon Market for Wine: Kentucky's Discrimination Against the Interstate Direct Shipment of Wine." MSU Collge of Business and Public Affairs Research Seminar, April.

**Awards and/or Honors:**

Rebekah Jackson is the recipient of the Edwa P. and Allie W. Young Award, given to an outstanding student in Government. In the Summer 2009, Rebrekah Jackson was a participant in the Canadian Parliamentary Internship Program. As an intern, she served for five weeks in the office of Rick Dykstra, a Conservative Party MP and came to know Canadian parliamentary politics from the inside. See her picture with Stephen Harper on the Kentucky Canadian Studies Association web site:<http://www.moreheadstate.edu/kcsa/index.aspx?id=50738>. Rebekah Jackson is the President of Societas Pro Legibus, MSU's Pre-law society, and has received its 2010 Pre-Law Scholar Award.

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

University of Louisville College of Law, Fall 2010 with a \$9,000 tuition scholarship.

***INSTITUTE FOR REGIONAL ANALYSIS AND PUBLIC POLICY*****BLAKE BEDINGFIELD****Major:**

Government

**Faculty Mentor:**

Stephen Lange

**Research/Project Title:**

Education in the American Republic: A View to Liberal Education and the Founding Fathers

**Project Abstract/Summary:**

In recent years, there has been an increasing focus upon character education in the public school system. This raises the question of the purpose of public education and its role in shaping citizens for our democratic republic. In order to address this question, this research reconsiders the foundations of public education and in particular the thoughts of the founding generation with respect to what public education is to accomplish by way of forming citizens' character, disseminating essential knowledge for effective political participation, cultivating democratic skills, and other ends. This project examines the specific historical, religious, philosophical, and political influences on public education as it developed in the United States. Our research shows that the Founders' original conception of education was a blend of influences that include classical components, Enlightenment thinkers, Christian spirituality and thought, early American influences from education in the colonial period, and finally, the Founder's own thoughts and views of what education should look like in the new American republic. This research was supported by a MSU Undergraduate Research Fellowship.

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

Bedingfield, Blake and Professor Stephen Lange. (2010). "Education in the American Republic: A View to Liberal Education and the Founding Fathers." Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

This paper represents the completion of the first half of this project. With the anticipated completion of the project next year, the final research paper will be submitted for presentation at the Kentucky Political Science Association meeting.

**Awards and/or Honors:**

N/A

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

N/A



**SUSAN BROWN****Major:**

Environmental Science/IRAPP

**Faculty Mentor:**

Brian Reeder

**Research/Project Title:**

Preliminary Comparison of Nutrient and Total Suspended Sediment Data from Water Samples Collected using Teledyne Portable Autosampler and EPA Field Methods for Wadeable Streams

**Project Abstract/Summary:**

Collecting water samples for measuring water quality in streams can be a very labor-intensive and time consuming process. Autosamplers can take samples in remote regions on time schedules that would be difficult or impossible with human labor. Autosamplers can reduce the amount of field work involved in stream research and are ideal for taking multiple samples over short intervals of change, such as during a storm event. The MSU Center for Environmental Education has been involved in a number of projects to assess changes in surface water quality in Eastern Kentucky; however, we are concerned about the reliability and validity of water samples taken with autosamplers compared to traditional grab samples. We compared water quality measurements of simultaneously collected water samples (autosampler and grab). Samples were collected from Dry Creek and Morgan Fork, tributaries of Triplett Creek, an "impaired" stream under section 303(d) of the Clean Water Act.

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

Brown, Susan R., et al. (2009, April). "Preliminary Comparison of Nutrient and Total Suspended Sediment Data from Water Samples Collected using Teledyne Portable Autosampler and EPA Field Methods for Wadeable Streams," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2009.

Brown, Susan R., et al. (2009, March). "Preliminary Comparison of Nutrient and Total Suspended Sediment Data from Water Samples Collected using Teledyne Portable Autosampler and EPA Field Methods for Wadeable Streams," Kentucky Water Resource Research Institute, Lexington, KY, March, 2009.

**Awards and/or Honors:**

N/A

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

N/A

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

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

**KARRI SMITH****Major:**

Art

**Faculty Mentor:**

Bobby Campbell

**Research/Project Title:**

The Altered Anatomies Project: The Moving Body in Animation

**Project Abstract/Summary:**

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

**Project Dissemination:**

N/A

**Awards and/or Honors:**

N/A

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

Ms. Smith plans on pursuing a career in graphic design or Web design.

**KENDRICK HOLBROOK****Major:**

Art

**Faculty Mentor:**

Joy Gritton

**Research/Project Title:**

The Eastern Kentucky Arts Project

**Project Abstract/Summary:**

The Eastern Kentucky Arts Project (EKAP) is in its fourth year of identifying and documenting arts resources in Kentucky's Appalachian counties. Since first introduced at the 2008 Appalachian Studies Association conference, the project's website has been launched at [www.ekap.org](http://www.ekap.org) with 34 (and counting) documented counties. Our most recent efforts to "engage community" with EKAP have included building relationships with residents in each county, establishing a public awareness campaign, and developing an on-going oral history research program. We have begun to post oral histories (with transcripts) to the EKAP website and have designed a forum specifically for teachers to connect/network with one another with regards to Eastern Kentucky's arts.

This year will conclude my tenure with EKAP as an Undergraduate Research Fellow, though I will continue to contribute as a community contact. This year I have been working to identify and document visual arts resources for the remaining Kentucky Appalachian counties on EKAP's website (having already documented those currently listed in previous years as an Undergraduate Research Fellow). As this is an on-going project, my documented resources will serve as a foundation for those who will take on my role in the future as they continue to add and update information.

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

Holbrook, K.J., "The Eastern Kentucky Arts Project," Celebration of Student Scholarships, Morehead State University, Morehead, KY, April, 2010.

Holbrook, K.J., "The Eastern Kentucky Arts Project," 33<sup>rd</sup> Annual Appalachian Studies Conference, North Georgia College and State University, Dahlonega, GA, March, 2010.

Holbrook, K.J., "The Eastern Kentucky Arts Project," 4<sup>th</sup> Annual Kentucky Regional Engagement Conference, Northern Kentucky University, Highland Heights, KY, November, 2009.

**Oral Presentations:**

Holbrook, K.J., Professor Joy Gritton, Graphic Designer Gloria E. Stepp, and Executive Producer Chuck Mraz. "The Eastern Kentucky Arts Project," interview, Morehead State Public Radio Front Page, Morehead, KY, November, 2009.

In addition, other EKAP team members (Professor Joy Gritton and Graphic Designer Gloria E. Stepp) have presented my research in the following venues:

"East KY Arts Have New Home," The Trail Blazer, November, 2009.

Presentation for the New Cities Arts and Humanities Committee, Fall 2009

Presentation at the Kentucky Craft History Preservation Association Workshop, November, 2009.

**Awards and/or Honors:**

Outstanding Undergraduate Art Student Award, Morehead State University, 2009.

Appalachian Studies Outstanding Student Award, Morehead State University, 2008.

Best-In-Show for painting Free (Ice-Winged Wolf), Morehead State University Annual Senior Exhibition, 2008.

J.E. Duncan Award (Junior with highest GPA), Morehead State University, 2007.

Outstanding Sophomore Art Student Award, Morehead State University, 2006.

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

After successfully completing this semester, I will be qualified to teach Visual Arts for students grades P-12. In addition to pursuing a teaching career, I also plan on furthering my own education at the graduate level (seeking a Masters in Fine Art). I aspire to one day teach at the University/Post-Secondary level.

**CECILY HOWELL****Major:**

Art

**Faculty Mentor:**

Jennifer Reis

**Research/Project Title:**

Gallery and Exhibition Programming: Management, Logistics, and Design

**Project Abstract/Summary:**

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

**Project Dissemination:****Exhibitions:**

"The Shape of Things" Group Exhibition, CY Art Gallery, MSU, August – September, 2009  
"Terrible Beauty" Group Exhibition, CY Art Gallery, MSU, September - October, 2009  
"2010 MSU Art Faculty Exhibition" Group Exhibition, CY Art Gallery, MSU, November – December, 2009  
"No New Tale To Tale: Contemporary Narrative Art," National Juried Art Exhibition, CY Art Gallery, MSU, January – February, 2010  
"Burley-Coal High School Art Exhibition and Competition," CY Art Gallery, MSU, March, 2010  
"2010 Annual MSU Sophomore Art Exhibition," CY Art Gallery, MSU, March – April, 2010  
"2010 Annual MSU Juried Senior Art Exhibition," CY Art Gallery, MSU, April – May, 2010  
"2010 Bluegrass Biennial: A Kentucky Juried Exhibition," CY Art Gallery, MSU, March – April, 2010  
"Reverse Ekphrasis," Art Exhibition & Reading, Strider Art Gallery, MSU, April, 2010

**Awards and/or Honors:**

N/A

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

N/A

**ABIGAIL BRADING****Major:**

Art

**Faculty Mentor:**

Kira Campbell

**Research/Project Title:**

Developing Ceramic Form Using zBrush and Rapid Prototyping

**Project Abstract/Summary:**

The purpose of this project was to determine the qualitative differences between hand-sculpting and sculpting through a computer program. We chose to work with zBrush, a 3-dimensional imaging program that allows you to work in a way that is closely analogous to hand-building in clay. The form we chose to work with, a gear, was built using three methods: 1. Slabs of clay 2. Slip-casting using a plaster mold. The final gear was built using the zBrush program. When the project was complete, we analyzed whether the computer-aided gear had any qualitative and/or aesthetic differences from the hand-built gears. We found that when creating a prototype in zBrush, foresight is needed to plan how the object will turn out in a 3-D print. We also discovered that when working with flexible and responsive materials like clay, making precise angles, fits and cuts takes a great deal of time, longer than using the tools in zBrush. Finally, we discovered that when working with fitted pieces, 3-D printing offers a precision that is not available in clay.

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

Brading, A., "Developing Ceramic Form Using zBrush and Rapid Prototyping," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.  
Brading, A., "Developing Ceramic Form Using zBrush and Rapid Prototyping," Posters-at-the-Capitol, Frankfort, KY, January, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **FRANCIS KRUG**

### **Major:**

Philosophy

### **Faculty Mentor:**

Joy Gritton

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

My Original Kentucky Home

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

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

Research paper, sources, and images have been forwarded to Charles McKinney, MSU Art and Design student who will be creating the diorama at Fort Boonesborough during the fall semester.

### **Project Dissemination:**

#### **Oral Presentations:**

Krug, Francis, "My Original Kentucky Home," Celebration of Student Scholarship, Morehead State University, Morehead KY, April, 2010.

Krug, Francis, "My Original Kentucky Home," 33rd Annual Appalachian Studies Association Conference, North Georgia College and State University, Dahlonega, GA, March, 2010.

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

N/A

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

Continue work on the diorama and pursue a Masters in Fine Arts Degree – undecided.

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

## **KRISTIN HAUSSTEIN**

### **Major:**

Communication AD/PR and Sociology

### **Faculty Mentor:**

Sylvia Henneberg

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

Politics of Gender: A Transitional Comparison of the Media Coverage for the Female Candidate of the 2005 German General Election and the Female Candidate of the 2008 U.S. Democratic Presidential Nomination

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

The intention of this paper is to identify and analyze the differences in media coverage of the first female contenders for highest office in Germany and the United States. In light of Germany electing Angela Merkel as chancellor for the second time and Hillary Clinton losing the Democratic presidential nomination to Barack Obama, I assert that U.S. media have a more powerful effect on the public and that they utilize bias gender framing at higher rates. This study draws conclusions about each country's political-media system and the role of women in politics.

### **Project Dissemination:**

#### **Oral Presentations:**

Hausstein, K., "A Transnational Comparison of Political Media Coverage of Angela Merkel, Germany, and Hillary Clinton, U.S.," Theodore Clevenger, Jr., Undergraduate Honors Conference of the SSCA, 2010 Convention, Memphis, TN.

Hausstein, K., "A Transnational Comparison of Political Media Coverage of Angela Merkel, Germany, and Hillary Clinton, U.S.," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

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

Outstanding Student Researcher Award

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

Kristin has been accepted for graduate school at the University of Amsterdam in the Netherlands. She will pursue a MSc in European Communication Studies with emphasis in political communication.

## **GARY CORNETT**

**Major:**

Communication

**Faculty Mentor:**

Deborah Plum

**Research/Project Title:**

Get Fit: Body, Mind and Spirit

**Project Abstract/Summary:**

The major goal of this project was to produce five 30-minute segments on fitness and wellness that would promote health and physical activity to the audience on the Morehead State University campus. The objectives were: to produce television programming that would explore the unique health challenges college students face and provide resources and appropriate actions to promote overall health and well-being; to increase knowledge of health and wellness opportunities and resources on campus; to promote physical activity and improved fitness on campus; to provide fitness instruction on a variety of exercise modalities that students can perform on campus; to contribute to an on-campus discussion about health and wellness issues; to contribute to the professional development of MSU faculty producers; to contribute to the portfolios of the students involved in the production process; to broadcast and disseminate the production to other audiences.

**Project Dissemination:**

The project could not be disseminated because it did not materialize.

**Awards and/or Honors:**

N/A

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

Student plans to seek employment in the electronic media field or possibly attend graduate school.

## **MICHELLE FIORE**

**Major:**

Journalism

**Faculty Mentor:**

Ann Andaloro

**Research/Project Title:**

Real Women: The Women of Reality Television

**Project Abstract/Summary:**

The researchers conducted a feminist audience reception study of reality television. Reality television inhabits our popular culture landscape as well as the hearts and minds of the audience. It is our modern day storyteller. It is significant to look at mediated stories and attempt to understand gender relationships within our popular culture. Reality television texts were examined from a feminist perspective. The study also explored and described audience interpretations of gender roles as they relate to reality television. Like other audience studies, this study explored the connection between media content, gender roles and the lived experiences of the participants in order to provide understanding of how viewing reality television influences viewers' interpretations of the world. Moreover, this study investigated the little explored area of reality television audience reception. This study is important because reality television is engaging the hearts and minds of many viewers.

**Project Dissemination:**

A scholarly article was produced from the study. It will be submitted to the Kentucky Journal of Communication. It will be included in a book of articles edited by Ann Andaloro. The book is a collection of articles from the Midwest Popular Culture Association Conference Panels titled Reality Television: The Hero's Journey. The book is under consideration from Edwin Mellen Press. The paper will be presented at the Midwest Popular Culture Association Conference in Fall of 2010. The project was presented as a poster at the Celebration of Student Scholarship this spring.

**Awards and/or Honors:**

N/A

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

Michelle is applying for non-profit women's organizations in Lexington. She has applied to Americorps. Michelle hopes to return to MSU for graduate school in a few years.

## **DEPARTMENT OF ENGLISH**

### **THERESA LANG**

**Major:**

English

**Faculty Mentor:**

Kathryn Mincey

**Research/Project Title:**

Exploring Literature Curriculum Alignment and Instructional Support for Kentucky English Teachers

**Project Abstract/Summary:**

The project has included five goals:

- Continuing to interpret data collected from the survey of Kentucky high school English teachers
- Providing research-based professional development opportunities for area English teachers
- Inventorying materials in the English Education Center (402 Combs Building) to determine gaps in instructional support materials (based on the survey)
- Exploring grant opportunities and submitting grant applications to acquire instructional support materials for texts commonly taught in Kentucky High Schools
- Development of a web page presenting the results of the project at <http://www.morehead-st.edu/eec/index.aspx?id=27486>.

**Project Dissemination:**

This ongoing project has continued to generate professional development workshops for regional teachers and to disseminate research to Kentucky teachers. The web site currently under development by Ms. Mincey and Ms. Lang, <http://www.morehead-st.edu/eec/index.aspx?id=27486>, not only displays the results of the research but also applies the research for collaboration with 8-12 English teachers in an effort to align 8-16 curriculum. Mr. Wilson's responsibilities as the research fellow will be to continue research efforts to gather and disseminate data through the web site. The interpretation of the data gathered will lead to further development of curriculum alignment analysis based on the compiled list of commonly-taught texts at the website <http://www.morehead-st.edu/eec/index.aspx?id=27486> and to the continuation of professional development offerings for area English teachers.

**Awards and/or Honors:**

The project has consistently proven itself through presentations at conferences. The original fellow, Maggie Gulley (2006-2008) co-presented the preliminary results of the 2006-2007 study with Mrs. Mincey at the Kentucky Council of Teachers of English / Language Arts in February in February of 2007 and presented it by herself at the Posters-at-the-Capitol in March and MSU's Celebration of Student Scholarship showcase in April. Then Theresa has continued these activities and expanded on them during the past three semesters. She has helped to develop the web site that represents the accumulative accomplishments of this ongoing project. Her work can be viewed at <http://www.morehead-st.edu/eec/index.aspx?id=27486>. She co-presented with Ms. Gulley and Prof. Mincey at the 2008 Kentucky Council of Teachers of English, she presented at both the 2008 and 2009 Celebration of Student Scholarship at MSU, and she co-presented with Prof. Mincey at the 2009 Kentucky Council of Teachers of English Annual Conference.

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

N/A

### **RYAN ANDERSONS**

**Major:**

Art/Creative Writing

**Faculty Mentor:**

Crystal Wilkinson

**Research/Project Title:**

Innovation and Collaboration: The Intersection of Visual Art and Creative Writing

**Project Abstract/Summary:**

The project explored the intersection of visual art and creative writing at MSU. I spent the year researching and honing the ways in which the university's creative writing program and art programs can continue to collaborate. Activities included research into collaborations at other universities with goals of replicating those most successful findings at MSU.

**Project Dissemination:**

The most prominent manifestation of this research involved serving as the art director for INSCAPE, MSU's undergraduate literary magazine (which is now available) and the Reverse Ekphrasis Project, a collaborative effort among MSU's visual art and creative writing communities. An art exhibit and reading by both participating artists and writers which was held on April 29.

**Awards and/or Honors:**

Was featured in a special senior reading with two other writers who were not BFA in Creative Writing students but were closely involved with the creative writing community.

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

Plans to pursue a career that will merge the two skills/creative sets of art and writing.

**SEAN CORBIN****Major:**

Creative Writing

**Faculty Mentor:**

Chris Holbrook

**Research/Project Title:**

Creative Writing Activities Development and Management

**Project Abstract/Summary:**

Sean worked with Mr. Holbrook to develop and manage Creative Writing activities related to the Creative Writing program at MSU, with the added goal of enhancing the efforts, effectiveness, value and production of the Student Creative Writing community at MSU. Sean worked with the editors of Inscape magazine to coordinate meetings, magazine development and a showcase reading event. He also served as the head of the Writers Network, a student organization in charge of scheduling student-led events (open mics, student panel discussions, etc.). In this capacity, Sean coordinated efforts between students and faculty to discover the most efficient and effective ways to develop and execute these specific types of programs. In addition, Sean used the Writers Network to develop a system of social and peer-led support for writers to discuss and work through issues pertaining to the lives of young writers in academic settings.

**Project Dissemination:**

The production of an undergraduate journal; a presentation at the Celebration of Student Scholarship; four open mic events within the community; one student panel discussion on campus; one student panel discussion at the Kentucky Philological Association conference in Richmond; framework for the Creative Writing BFA website.

**Awards and/or Honors:**

N/A

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

N/A

**MORGAN MULLINS****Major:**

Philosophy

**Faculty Mentor:**

George Eklund

**Research/Project Title:**

Development of an Annotated Listing of Creative Writing Journals and Small Presses

**Project Abstract/Summary:**

Mr. Mullins did a national search for listings of literary journals that are especially open to submissions from writers who seek publication early in their careers. He made use of national data bases and the Council of Literary Magazines and Presses Directory. He was able to compile a listing of one hundred journals/presses who are open to unsolicited submissions from authors who have not placed their work previously in journals.

**Project Dissemination:**

This annotated listing has been submitted to the Creative Writing Faculty at Morehead State University. It will be reviewed by the faculty and disseminated to all students in the B.F.A. program for their use.

**Awards and/or Honors:**

N/A

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

Mr. Mullins will likely pursue graduate work in Philosophy or Creative Writing.

## KEVIN MURPHY

**Major:**

English

**Faculty Mentor:**

Glen Colburn

**Research/Project Title:**

Anarchism in Medieval Mystery Plays

**Project Abstract/Summary:**

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

**Project Dissemination:**

Murphy, K. and Professor G. Colburn, "Anarchism in Medieval Mystery Plays," Celebration of Student Scholarship, Morehead State University, Morehead, Ky, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## STACEY GREENE

**Major:**

Creative Writing

**Faculty Mentor:**

Crystal Wilkinson

**Research/Project Title:**

The Art of Contemporary Editing and Publishing and the Intersection of Diversity

**Project Abstract/Summary:**

This fellowship focused on aspects of editing and publishing through hands-on experience. Down Home: A Portrait of African American Women in the New South, edited by Crystal Wilkinson captures the new ideologies of African American women living in the modern Southern states, and includes a variety of literary voices, techniques, and subjects. While the submissions vary, many similarities exist in the themes of the individual pieces. We also reviewed several manuscripts for the upcoming issue of Mythium, a literary journal also edited by Professor Wilkinson, which centers around writers from a variety of ethnic backgrounds from around the world. The dynamics I experienced working with African American authors and other writers of color, contrasted with my limited personal background experience in the themes/subjects, has allowed a more focused look on the writing art itself, while enabling me to sub-experience and learn about the Southern African American culture as well as publishing. This experience has given me a lead-in into publishing contemporary writing.

**Project Dissemination:**

**Oral Presentation:**

Greene, S.N. and Wilkinson, C., "Going Down Home: Publishing African American Women in the New South," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

Applied to Sarabande Books, Inc., for a Summer Internship.

## MITCHELL WILSON

**Major:**

English AoC

**Faculty Mentor:**

Kathryn Mincey

**Research/Project Title:**

Exploring Literature Curriculum Alignment and Instructional Support for Kentucky English Teachers

**Project Abstract/Summary:**

The project has included five goals:

- Continuing to interpret data collected from the survey of Kentucky high school English teachers



- Providing research-based professional development opportunities for area English teachers
- Inventorying materials in the English Education Center (402 Combs Building) to determine gaps in research and instructional support materials (based on the survey)
- Exploring grant opportunities and submitting grant applications to acquire instructional support materials for texts commonly taught in Kentucky High Schools
- Developing a web page presenting the results of the project at <http://www.morehead-st.edu/eec/index.aspx?id=27486>

**Project Dissemination:**

This ongoing project has continued to generate professional development workshops for regional teachers and to disseminate research to Kentucky teachers. The web site currently under development by Ms. Mincey and Mitchell Wilson, <http://www.morehead-st.edu/eec/index.aspx?id=27486>, not only displays the results of the research but also applies the research for collaboration with 8-12 English teachers in an effort to align 8-16 curriculum. Mr. Wilson's responsibilities as the research fellow have been to continue research efforts to gather and disseminate data through the web site. The interpretation of the data gathered will lead to further development of curriculum alignment analysis based on the compiled list of commonly-taught texts at the website <http://www.morehead-st.edu/eec/index.aspx?id=27486> and to the continuation of professional development offerings for area English teachers. He has also inventoried and organized research and instructional materials housed in the MSU English Education Center for easier access for professional development.

**Awards and/or Honors:**

The project has consistently proven itself through presentations at conferences. The original fellow, Maggie Gulley (2006-2008) co-presented the preliminary results of the 2006-2007 study with Mrs. Mincey at the Kentucky Council of Teachers of English / Language Arts in February in February of 2007 and presented it by herself at the Posters-at-the-Capitol in March and MSU's Celebration of Student Scholarship showcase in April of 2007. Then Theresa Lang continued these activities and expanded on them during her three semesters as the URF, developing the web site that represents the accumulative accomplishments of this ongoing project. That work can be viewed at <http://www.morehead-st.edu/eec/index.aspx?id=27486>. Ms. Lang co-presented with Ms. Gulley and Prof. Mincey at the 2008 Kentucky Council of Teachers of English, she presented at both the 2008 and 2009 Celebration of Student Scholarship at MSU, and she co-presented with Prof. Mincey at the 2009 Kentucky Council of Teachers of English annual conference. Mitchell Wilson, the current fellow with the project has continued to develop the research materials in the English Education Center, Combs 402, and has co-presented with Prof. Mincey at the 2010 KCTE conference in Louisville in February. In April of 2010, he also presented at the MSU Celebration of Student Scholarship.

**Awards and/or Honors:**

N/A

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

Mitchell will student teach in the Spring 2011 semester and then will either apply for a position teaching English or for a master's degree program.

**DAKOTA THORNBERRY**

**Major:**

English

**Faculty Mentor:**

Layne Neeper

**Research/Project Title:**

Stephen Wright: A Critical Introduction

**Project Abstract/Summary:**

Mr. Thornberry assisted with many aspects of the project. He conducted research on this novelist, compiled primary source notes and transcribed passages from other secondary sources. He will read much of the secondary literature on the subject, and help to compile a bibliography of primary and secondary sources.

**Project Dissemination:**

Mr. Thornberry presented a poster presentation at the Posters-at-the-Capitol in Frankfort, and exhibited a poster at the Celebration of Student Scholarship.

**Awards and/or Honors:**

Mr. Thornberry was awarded the Outstanding Undergraduate Student in English Award for 2009-2010.

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

Mr. Thornberry has been accepted into the MA in English Programs at both the University of Kentucky and Morehead State University for the Fall of 2010. He has not made a final decision yet.

## **DEPARTMENT OF HISTORY, PHILOSOPHY, RELIGION, AND LEGAL STUDIES**

### **CHRISTOPHER WISEMAN**

**Major:**

Social Studies

**Faculty Mentor:**

Kris DuRocher

**Research/Project Title:**

Lessons in Black and White: The Racial and Gender Socialization of White Children in the Jim Crow South

**Project Abstract/Summary:**

This undergraduate research fellowship focused on developing the manuscript "Lessons in Black and White: The Racial and Gender Socialization of White Children in the Jim Crow South," under contract by the University Press of Kentucky for publication. In August of 2009 the manuscript was sent to outside readers and returned in October 2009. From August to October, Chris worked on researching the copyrights needed for the project. From October on, Chris researched a few remaining areas that needed revision, and did some fact checking. In the spring he finalized the remaining copyrights. During this time Chris also researched his historical interest, masculinity in early 20<sup>th</sup> century America, focusing on the boxer Jack Johnson.

**Project Dissemination:**

**Oral Presentations:**

C. Wiseman, "The Great White Hope: America's Answer to Jack Johnson," Phi Alpha Theta Conference, Northern Kentucky University, March, 2010.

C. Wiseman, "The Great White Hope: America's Answer to Jack Johnson," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Awarded the Outstanding Student award for the HPRL department, demonstrating an overall recognized excellence and growth.

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

Chris Wiseman will be completing his student teaching in the fall of 2010. With his scholarly achievements and experiences, he will be an asset to any public school system, where he plans to teach after graduation in December, 2010.

### **SUSAN AHMADI**

**Major:**

Spanish

**Faculty Mentor:**

Kelly Collinsworth

**Research/Project Title:**

Law School Admission's Testing: Are Morehead State University Students at a Disadvantage?

**Project Abstract/Summary:**

MSU students taking the LSAT were found to have an average LSAT score almost 5 points lower than the national average. The research that was collected indicated that students having a lower socioeconomic status score lower on the LSAT than students with a higher socioeconomic status. Other studies on testing in general have shown that students from poor counties score lower on standardized testing. The great majority of the students taking the LSAT at MSU are from Appalachian counties, which are the poorest counties in the U.S. We began collecting data from students who took the LSAT in 2009 to determine household income and county of origin to see if our data was consistent with other studies. While our sampling group was very small, we did find our data consistent. We also looked at the effect on students with low LSAT scores and determined that our students are being prevented from attending law schools in the state due to their low scores. Many students are forced to attend low-tier ranked schools out of state, which strongly limits their marketability after graduation. Several studies indicated that lower socioeconomic status students' poor scores were attributable to lack of access to testing materials and workshops, and also a lack of study. Based on this, we provided several LSAT study sessions to a group of 4 students one month prior to the September 2009 LSAT. All of the students attending reported their scores rising 4 to 5 points from their previous testing attempt. This indicates that with future intervention with LSAT study we can increase participating students scores.

**Project Dissemination:**

**Oral Presentation:**

Ahmadi, S., "Law School Admission's Testing: Are MSU Students at a Disadvantage?" Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Poster Presentation:**

Developed a poster containing her research that was presented in conjunction with one of her IRAPP classes.

**Awards and/or Honors:**

N/A

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

N/A

**ROBERT KINCAID****Major:**

Philosophy/English

**Faculty Mentor:**

Wendell O'Brien

**Research/Project Title:**

Writing Popular Philosophical Essays

**Project Abstract/Summary:**

Mr. Kincaid both worked on his own essays and helped Dr. O'Brien work on his. The results were: (1) significant changes (improvements) to three of Dr. O'Brien's essays, which will be published eventually in professional journals or a book; and, more importantly, (2) acceptance of Mr. Kincaid's own essay proposal for publication in a major national press. (See below.)

**Project Dissemination:**

Dr. O'Brien's essays will be published in a venue to be determined. Mr. Kincaid's forthcoming essay will be published in a book on Philosophy and Spongebob Squarepants in Open Court's Philosophy and Popular Culture Series.

**Awards and/or Honors:**

N/A

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

N/A

**JOSHUA INGRAM****Major:**

History

**Faculty Mentor:**

Alana Cain Scott

**Research/Project Title:**

(Original) "The Role of Women in Appalachian Christianity: The Stone-Campbell Movement in Eastern Kentucky"

(Revised) "Strength of the Spirit: The Evolution of Women in Eastern Kentucky Christian Churches, 1909-1960"

**Project Abstract/Summary:**

The fellowship began as research for an article-length research project on the role of women in the Barton-Stone movement, focusing on eastern Kentucky. During the fall semester, Mr. Ingram did complete a nice annotated bibliography of related materials from the Camden Carroll Library as planned. He decided to focus on the part of the Barton-State movement that became the Christian Churches, Disciples of Christ (DOC). However, from that point on his research evolved quite a bit. By focusing on several DOC churches, in particular ones in Fleming County, Mason County, and Montgomery County, Mr. Ingram explored the church records and interviewed prominent women from these churches. As the original abstract states, what has been interesting about these churches is how the role of women progressed during the 20<sup>th</sup> century. In 1907 women played typical roles in the DOC churches and were not ordained. However, by 2007 the church ordained women and the head of the DOC North American organization was a woman, Dr. Sharon Watkins, who was chosen to give the inaugural breakfast address for President Barack Obama.

Mr. Ingram has an excellent argument. He claims that it was the women of these churches who ran the fund-raising for them, particularly in rise of the Christian Women's Fellowship that emphasized the world missions effort between World War I and World War II. But they also raised money for their own congregations to renovate the churches, hire staff, and other things. By controlling as much as 87% of the wealth of these churches, the women were able to establish more power for themselves within the church structure. For instance, many of them endowed scholarships in what became Lexington Theological Seminary and encouraged women to obtain these scholarships.

Certainly this work could go on. Unfortunately Mr. Ingram is graduating. I hope to find a student who will be interested in continuing this work. It would be interesting to take the research past 1960.

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

Ingram, J., "Strength of Spirit: The Evolution of Women in Eastern Kentucky Christian Churches, 1909-1960," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

The people he worked with at the churches have been interested in his research and over the summer his poster is going to go on a "tour" of the churches so that they can see his project.

Mr. Ingram is also finishing a conference-length paper on the subject. This paper was not accepted at the regional undergraduate history conference as we had hoped (held at Northern Kentucky University on March 27, 2010), but even though Mr. Ingram will not be in school we do plan to submit it for the spring 2011 Bluegrass Symposium at the University of Kentucky.

**Awards and/or Honors:**

N/A

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

Mr. Ingram is spending the upcoming year working and is enrolled in a summer Kaplan workshop to encourage a nice GRE score when he takes it in the Fall 2010. He plans to attend graduate school to obtain a master's degree in library science with the ultimate goal of becoming an archivist.

**DANIEL MATTOX****Major:**

Philosophy

**Faculty Mentor:**

Karen Bardsley

**Research/Project Title:**

Philosophy of Video Games

**Project Abstract/Summary:**

This project was a comprehensive literature review done in hopes of creating an anthology for undergraduate classes. It also paralleled a solo project on the nature of love, being, and physicality as explored through multiplayer online games. The primary accomplishment was a group of 16 relevant sources with about 12 that could be directly adapted for the anthology and 4 that could be used as sources for the solo work.

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

D. Mattox, "Philosophy of Video Games," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Poster Presentation:**

A poster has been accepted to the National Collegiate Honors Council Annual Event for the Fall of 2010 concerning the research and its results.

**Awards and/or Honors:**

N/A

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

N/A

***DEPARTMENT OF INTERNATIONAL AND INTERDISCIPLINARY STUDIES*****LAUREN DECKER****Major:**

Art Education/French

**Faculty Mentor:**

John Secor

**Research/Project Title:**

Turning Swords into Ploughshares: African Sculpture in the Post-violent Era

**Project Abstract/Summary:**

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

**Project Dissemination:**

Decker, L., and Dr. J.R. Secor (mentor), "Transforming Swords into Ploughshares," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Chosen the "Top Senior in Art" by the faculty of the Art Department, April, 2010.

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

Peace Corps, employment as an Art Teacher, etc.

**HOLLY BACK****Major:**

Spanish

**Faculty Mentor:**

Philip Krummrich

**Research/Project Title:**

Working with Foreign Language Students Outside the Classroom

**Project Abstract/Summary:**

Ms. Back was responsible for leading the activities of the Foreign Languages Residence Area in Fields Hall, including informal conversation practice and cultural activities. She carried out her responsibilities very well, working with the Spanish Club to get more students involved and avoid duplication of effort. She made a poster presentation about her work at the Celebration of Student Scholarship.

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

Back, H., "Language Learning through Experimental Cultural, Residential, and Linguistic Exploration," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Although the honor was not directly related to her work as an Undergraduate Research Fellow, Ms. Back was named the Outstanding Student of Spanish for 2009-2010.

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

Ms. Back is actively seeking a job that will permit her to use her fluent Spanish, either with the government or in private enterprise.

***DEPARTMENT OF MUSIC, THEATRE, AND DANCE*****JUSTIN CROUSHORE****Major:**

Music Education

**Faculty Mentor:**

William Mann

**Research/Project Title:**

Essential Orchestral Literature for the Classical Trombonist

**Project Abstract/Summary:**

A thorough knowledge of certain orchestral works is very important to the trombonist that is aspiring to play in a professional orchestra. With this research project, Mr. Croushore has studied the most significant works in the orchestral literature for the trombonist, researching various styles, techniques, and musical ideas that are important to offering the most effective and authentic performances of the literature. Mr. Croushore has also examined the various issues associated with the audition process relative to each selected orchestral work, and has provided ideas to help with these issues. As part of the final product, a set of audio tracks were produced to enhance practice efficiency of these orchestral excerpts.

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

Croushore, J., "Essential Orchestral Literature for the Classical Trombonist," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

MSU Trombone Studio Performance Class, April, 2010.

MSU Trombone Studio Performance Class, November, 2009.

**Awards and/or Honors:**

N/A

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

N/A

## **KEVIN CALLIHAN**

**Major:**

Music Education

**Faculty Mentor:**

Stacy Baker

**Research/Project Title:**

New Concert Transcriptions, Arrangements, and Compositions for Brass Ensembles

**Project Abstract/Summary:**

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

**Project Dissemination:**

**Oral Presentation:**

Callihan, K.M. and Baker, S.A., "New Concert Transcriptions, Arrangements, and Compositions for Brass Ensembles," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Performance:**

Callihan, K.M. and Baker, S.A., "New Concert Transcriptions, Arrangements, and Compositions for Brass Ensembles," Student Recital, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Chosen to perform one of the works involved in this fellowship at the 52<sup>nd</sup> Annual Morehead State University Concert Band Clinic Prism Concert.

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

N/A

## **JOHN HANDSHOE**

**Major:**

Music Education

**Faculty Mentor:**

Deborah Eastwood

**Research/Project Title:**

The Study and Implementation of the Compositional Techniques of Charles Ives

**Project Abstract/Summary:**

Charles Edward Ives, (1874-1954) was an American contemporary composer, known for his often unorthodox and experimental compositional techniques. His Symphony No. 2 for Large Orchestra combines traditional European compositional techniques and styles with his more modern and "American" flavors, in addition to borrowing multiple popular tunes, as well as themes from more classical works. After contacting the copyright holder, the piece was analyzed and transcribed, which provided an understanding of Ives's compositional technique in combining multiple styles and melodies in one overall work. These techniques were applied in composing an original piece for low brass chamber ensemble, using multiple "borrowed" styles and melodies. This research was supported by an MSU Undergraduate Research Fellowship.

**Project Dissemination:**

**Oral Presentation:**

Handshoe, J.D. and Eastwood, D., "The Study and Implementation of the Compositional Techniques of Charles Ives," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **CAITLIN PILLOW**

### **Major:**

Music Education

### **Faculty Mentor:**

June Grice

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

The Correlation of Music Programs in Kentucky Elementary Schools and State Testing Results

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

This research involved the correlation of music education programs in Kentucky elementary schools and state testing results within those schools. This research provided information on positive, or negative, effects on the results of state standardized test scores in schools having music programs versus those schools that do not have music programs. The research included analyzing the report cards of various schools and determining if the scores on the school report cards are higher, or lower, when schools have qualified music teachers with specific times in the school day set aside for music class. Eighty schools were included in the project. It was discovered that 8 out of the 80 had no music program. The results showed that music programs are valued in Kentucky with most schools maintaining a music program. The difference between the schools without music programs versus those that do have music programs was inconclusive, with more research needed. It was apparent that there were multiple factors in the test scores results, with one of the most decisive reason for successful test scores being the quality of the teachers in the various disciplines.

### **Project Dissemination:**

#### **Oral Presentation:**

Pillow, C., "The Correlation of Music Programs in Kentucky Elementary Schools and State Testing Results," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

The research will be expanded and plans are to publish the results in the music journal of Kentucky.

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

N/A

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

Music Educator with plans of teaching in the public schools then graduate school in music education.

## **COLLEGE OF EDUCATION**

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

## **BRITTANY HERRERA**

### **Major:**

Learning and Behavior Disorders (P-12) and Elementary Education (P-5)

### **Faculty Mentors:**

Kim Nettleton

Sara Lindsey

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

Dancing Words: Hope for Dyslexics

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

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

### **Project Dissemination:**

#### **Poster Presentations:**

Herrera, B., Professor Lindsey, S. and Instructor, Nettleton, K. (2010, April). "Dancing Words. Hope for Dyslexics," Celebration of Student Scholarship, Morehead, KY, April 2010.

Herrera, B., Professor Lindsey, S. and Instructor, Nettleton, K. (2010, April). "Dancing Words. Hope for Dyslexics," Celebration of Student Scholarship, Morehead, KY, April 2009.

Herrera, B., Professor Lindsey, S. and Instructor, Nettleton, K. (2009, February). "Dancing words. Hope for Dyslexics," Posters-at-the-Capitol, Frankfort, KY, February, 2009.

**Awards and/or Honors:**

N/A

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

N/A

**TIFFANY SMITH**

**Major:**

LBD/MSD

**Faculty Mentor:**

Sarah Hawkins

**Research/Project Title:**

The Effects of Embedded Instruction on Teaching Statewide Pre-Kindergarten Learning Standards to Students with Significant Disabilities within Inclusive Preschool Classrooms

**Project Abstract/Summary:**

The purpose of this research project is to share results of a series of single subject studies that assessed the attainment of Pre-Kindergarten Standards by children with significant disabilities. Teachers in inclusive, public, preschool classrooms implemented assessment strategies, formulated individualized objectives and intervention plans, embedded those objectives in daily classroom activities, and monitored children's progress. It was our hypothesis that with appropriate individualized instruction and intervention, children with significant disabilities could make progress in an inclusive preschool classroom, much like their peers without disabilities. The results obtained from the study, thus far, shows several different things: (a) Teachers can successfully teach students with significant disabilities within inclusive classroom settings and (b) Children with significant disabilities can attain Pre-Kindergarten standards when: authentic assessment strategies are employed, individualized plans are developed, embedding consistently occurs, and instruction is monitored.

This year Dr. Sarah Hawkins and I have worked with the cooperating Rowan County Preschool Center. I have assisted preschool teachers in inclusive preschool classrooms, implemented authentic assessment strategies, selected individualized objectives, embedded objectives in classroom activities, and monitored student progress. I continue to work with the preschool teachers and children daily, as the research study is still in progress. This year we have had a total of seven students in our research study. Thus far, two of the seven students have met criterion (100%) and have maintained their particular skill for three weeks. All other students included in the study have made significant progress above baseline and are continuing to make further progress as the school year comes to a close. Due to the single subject research design, all children do not receive intervention at the same time.

**Project Dissemination:**

**Poster Presentations:**

Smith, T. & Hawkins, S. (January, 2010). "The Effects of Embedded Instruction on Teaching Statewide Pre-kindergarten Standards to Students with Significant Disabilities within Inclusive Preschool Classrooms," Posters-at-the-Capitol, Frankfort, KY, January, 2010.

Smith, T. & Hawkins, S. (March, 2010). "The Effects of Embedded Instruction on Teaching Statewide Pre-kindergarten Standards to Students with Significant Disabilities within Inclusive Preschool Classrooms," National Council of Teachers of Mathematics, Mathematics-at-the-Capitol, Frankfort, KY, March, 2010.

Smith, T. & Hawkins, S. (April 2010). "The Effects of Embedded Instruction on Teaching Statewide Pre-kindergarten Standards to Students with Significant Disabilities within Inclusive Preschool Classrooms," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Oral Presentation:**

Smith, T. & Hawkins, S. (March, 2010). "The Effects of Embedded Instruction on Teaching Statewide Pre-kindergarten Standards to Students with Significant Disabilities within Inclusive Preschool Classrooms," American Council for Rural Special Education, 30<sup>th</sup> Annual ACRES Conference, Memphis, TN, March, 2010.

**Awards and/or Honors:**

Awarded an Undergraduate Fellowship in the Department of Early Childhood, Elementary, and Special Education during the 2009-2010 academic school year, and was recognized at the College of Education's Awards Banquet.

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

N/A



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

### **NIKITA MURPHY**

**Major:**

Education

**Faculty Mentor:**

Lesia Lennex

**Research/Project Title:**

Women in Higher Education

Preschool Children and Mobile Technologies

TPCK and Continuum of Teacher Education

**Project Abstract/Summary:**

"Women in Higher Education" is original research in which female associate and professor level faculty were interviewed about institutional support of scholarship and promotion. The interviews have been transcribed and evaluated using ethnographic techniques. Along with literature reviews, this research has given a broader picture of women's perceptions of scholarly activity and promotion processes. This research has shown that women at Morehead State University, and the institution itself, are in line with national trends for women in higher education. Not only are women in fewer numbers at the professor level (only 2% at MSU) but they perceive some lack of support for their continued scholarly activity. Female professors are very willing to support mentorship in their discipline areas.

"Preschool Children and Mobile Technologies" is original research analyzing the group dynamics of mobile technologies, specifically laptop computers, among groups of preschool children. The research is based in part on previous research by Lennex and Nettleton (2010, in press) in which K-12 students were seen to develop independent groupings and leadership. The initial research has been conducted for this study. Videotapes and written anecdotal notes from field participants is being analyzed for patterns in group interaction with mobile technologies.

"TPCK and Continuum of Teacher Education" is original research about the use of technology, pedagogy, and content knowledge (TPCK) methodology as part of undergraduate and graduate teacher education. Initial literature reviews were performed on this topic. A book chapter proposal was not accepted and work was subsequently shelved.

**Project Dissemination:**

**Poster Presentations:**

"Women in Higher Education: Challenges, Triumphs, and Steel Ceilings," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

"Women in Higher Education: Challenges, Triumphs, and Steel Ceilings," submitted and rejected for poster presentation to Posters-at-the-Capitol, January, 2010.

"Women in Higher Education: Challenges, Triumphs, and Steel Ceilings," proposal to be submitted for poster presentation to Posters-at-the-Capitol, January, 2011.

**Oral Presentations:**

"Women in Higher Education: Challenges, Triumphs, and Steel Ceilings," proposal submitted to Mid-West Educational Research Association (MWEREA) for October 2010 regional conference, Columbus, OH.

"Preschool Children and Mobile Technologies," proposal for paper presentation to Society for Information Technology and Teacher Education, will be submitted October 2010 for March 2011 international conference, Nashville, TN.

**Publication:**

"Women in Higher Education: Challenges, Triumphs, and Steel Ceilings," work in progress toward article publication.

All literature reviews and interview analysis have been completed.

**Awards and/or Honors:**

N/A

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

N/A

## **21<sup>ST</sup> CENTURY EDUCATION ENTERPRISE**

### **AMANDA FAUST**

**Major:**

Education and Special Education (MSD)

**Faculty Mentor:**

Rebecca Roach

**Research/Project Title:**

21<sup>st</sup> Century Learning: The Influences of the DataSeam Initiative on the Use of Technology in Classroom Instruction

**Project Abstract/Summary:**

In order for teachers to prepare students for post-secondary education, especially in the STEM fields, they must use technology in their daily instruction. This descriptive study examined the factors that may be linked to teacher use of technology in classroom instruction. The following demographics were recorded: teacher age, years teaching, hours of technology professional development and hours technology used in personal life. 101 teachers from 8 Kentucky DataSeam school districts responded to an online survey on Survey Monkey. Microsoft Excel was used to examine trends and patterns for teachers who use computers in five or more lessons weekly. The outcomes of this study indicated that teachers who use technology in more than five lessons weekly received professional development in the area of technology and used technology frequently in their personal lives. Although it is often believed that older teachers who have been teaching for more than 15 years do not use technology as often as younger, newer teachers, this data did not reflect these beliefs. To further examine the relationship between personal use of technology and use of technology in the classroom, Ms. Faust will be collaborating with undergraduate student fellow, Terri Rose, to conduct a study on the use and ownership of iPods in teachers' personal lives and the number of hours teachers use iPods in their classroom instruction among Martin County teachers. She will also conduct a qualitative, digital movie study on the factors that influence teacher use of technology among Eastern Kentucky teachers. This research was supported by the College of Education at Morehead State University.

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

A. Faust. (2009). "What Makes a Techno-teacher?" Posters-at-the-Capitol, Frankfort, KY, December, 2009.

A. Faust. (2009). "What Makes a Techno-teacher?" Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**BROOKLYN KENDALL****Major:**

Elementary/Special Education

**Faculty Mentor:**

Rebecca Roach

**Research/Project Title:**

Indicators that Lead to Successful Completion of National Board Certification Among Eastern Kentucky Teachers

**Project Abstract/Summary:**

Currently, over 82,000 teachers hold National Board Certification, with 1,829 employed in Kentucky public and private schools. The Kentucky General Assembly stated that by 2020, every school in the state must employ one National Board Certified Teacher. Currently, incentives for National Board certification are monetary, an incremental increase in salary and compensation for NBPTS fees. Ms. Kendall conducted a correlation study to examine the relationship between successful completion of National Board certification and economic factors, certified salaries and free and reduced lunch percentages, among Kentucky school districts. Salary and free and reduced lunch data were collected from the Kentucky Department of Education website. The number of NBCTs in each school district was collected from Education Professional Standards Board's (EPSB) 2008-09 Districts and Schools with NBCT Personnel. The dependent and independent variables were compared using the Pearson r to statistically determine if a relationship existed. The results of this study did not indicate a relationship between salary and free and reduced lunch percentages and certification. According to the outcomes of this study, the financial incentives provided by the state and district board offices may not encourage teachers from low-salary districts any more than in high-salary districts. It may be inferred that although financial gain is a positive incentive for attempting certification, this incentive does not guarantee successful completion of the assessment program. Kentucky has invested funds in systems to reward teachers for successful completion, but support for candidates in the process may lead to a greater percentage of teachers earning certification in schools regardless of certified salary rates. This research was funded by the College of Education at Morehead State University.

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

Kendall, B. (2010, April). "What Factors May Impact National Board Certification Among Teachers in Kentucky Schools?" Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**TERRI ROSE****Major:**

Education

**Faculty Mentor:**

Rebecca Roach

**Research/Project Title:**21<sup>st</sup> Century Learning: The Influence of the Dataseam Initiative on the Use of Technology in Classroom Instruction**Project Abstract/Summary:**

The Morehead State University (MSU) College of Education collaborated with the faculty of the College of Science, MSU Space Science Center, and the Kentucky Dataseam to facilitate a two-day workshop, online learning community and ongoing in-school support for 74 students (50% females) from coal counties in Eastern Kentucky. High school science and technology teachers and students from rural schools were given an opportunity to work with science education professors, space science engineers and educational technology specialists to teach their students to research and record digital documentaries that they later showed on the Digital Star Theatre. High school students and teachers who participated in the project responded to a survey during the Space Movie Film Festival, the culminating showcase of student movies. The survey questions were designed to measure to what extent participants agreed with the goal statements for the project. Data was analyzed and charts were created on Microsoft Excel. According to the data collected, the results of this project satisfied each of the original project goals.

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

Rose, T. (2010, April). "The Space Movie Project: Digital Movie Making for Innovative, Real World Learning," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**COLLEGE OF SCIENCE AND TECHNOLOGY*****DEPARTMENT OF AGRICULTURAL SCIENCES*****LATISSA O'CULL****Major:**

Agricultural Science/Vet-Tech Option

**Faculty Mentor:**

Phil Prater

**Research/Project Title:**

Incidence of Bovine Viral Diarrhea Virus-persistent Infection in Eastern Kentucky Cattle

**Project Abstract/Summary:**

Bovine Virus Diarrhea (BVD) is a devastating disease of all cattle. The disease reduces productivity and increases death loss of cattle. Clinical signs of mucosal erosions and diarrhea have obvious impacts on infected animals, but more devastating are those animals that do not thrive through lower weight gains, increased disease susceptibility, and diminished reproductive performance. Controlling BVD is a daunting task. Key to the success of these programs is testing, vaccinations and bio-security. The major source of BVD infection is persistently infected animals (PI's). PI's result from cows being exposed to the virus during pregnancy and the fetal calf becoming infected. Although frequently these calves show no signs of illness themselves, they shed the virus in such great numbers that even well-vaccinated animals may become infected. This project sought to determine the approximate infection rate of BVD-PI cattle in Eastern Kentucky cattle farms. Cattle were sampled by obtaining a single ear notch from the edge of the pinna of the ear. Capture antigen-ELISA: BVD-PI testing was used in the analysis of determining whether cattle are positive or negative for BVD-PI. Overall, no cases of BVD-PI were detected in the

Eastern Kentucky farms that were surveyed. Data collected was analyzed for age, weight, farm management scheme, nutrition and herd health / vaccination status. Results showed that the majority of the farms had instituted BVD vaccination programs using a killed virus vaccine. The majority of farms also maintained an appropriate trace mineral program. The most important characteristic of these farms, that helped to reduce or eliminate problems with BVD-PI, was the fact that none of these farms bought cattle from outside sources for replacement purposes. Although no active cases of BVD-PI were detected, this disease still warrants vigilant surveillance by beef cattle producers.

**Project Dissemination:**

**Oral Presentation**

O'Cull, Latissa. (2010). "Incidence of Bovine Viral Diarrhea Virus-persistent Infection in Eastern Kentucky Cattle," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

Continue working in private veterinary practice; and possibly pursuing graduate work toward a Master's degree.

**MORIAH PENICK**

**Major:**

Animal Science

**Faculty Mentor:**

Rebecca Miculinich

**Research/Project Title:**

Identification of Genetic Markers for Improvement of Fresh Pork Quality

**Project Abstract/Summary:**

Previous research has determined that meat quality traits can be improved through marker assisted selection in livestock populations. The objective of this project is to investigate the effect of two promising candidate genes for fresh pork quality; Adipocyte determination and differentiation factor-1 (ADD1) and pyruvate dehydrogenase E1-alpha subunit (PDHA1). Genomic DNA was extracted from approximately 300 swine blood samples. Polymerase chain reaction, restriction fragment length polymorphism (PCR-RFLP) procedures and a statistical association analysis to compare genotype effects on economically important quality traits in two breed populations is on-going. The Berkshire breed is noted as having the best natural juiciness, flavor and tenderness, while the Landrace breed is on the opposite end of the spectrum for meat quality (MQ). Results of initial testing (n=100) show that the ADD1 marker is informative in both Berkshire and Landrace breeds. ADD1 allele-2 is at a higher frequency (.7) in the Berkshire population as compared to the Landrace breed (.5). A preliminary association analysis also found that ADD1 genotype-22 pigs were significantly ( $P < .05$ ) fatter than both the genotype-11 and genotype-12 pigs. Preliminary results are significant considering that fat deposition is highly correlated with preferred pork quality traits. This is the first marker within ADD1 to show promise for use in marker assisted selection in livestock. Further characterization of the effects of ADD1 on various other meat quality traits using a larger sample size is currently being conducted. PDHA1 genotyping and association analysis will begin May 2010. Results for both genes will be finalized and publications submitted Fall 2010. This work will be presented in the undergraduate awards sections at the American Society of Animal Science meetings in 2011. Expansion of this research will include investigations with other swine breeds that are popular in U.S. commercial production, as well as the characterization of ADD1 and PDHA1 in other livestock species. Funding for this project was provided by the MSU Undergraduate Research Fellowship and the Ohio State University Department of Animal Sciences.

**Project Dissemination:**

**Oral Presentation:**

Penick, Moriah L. and Miculinich, Rebecca E. (2010, April). "Identification of Genetic Markers for Improvement of Fresh Pork Quality," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**JORDAN WUTHRICH**

**Major:**

Veterinary Science

**Faculty Mentor:**

Kimberly Peterson

**Research/Project Title:**

The Effects of Dexmedetomidine on Greyhounds during General Anesthesia

**Project Abstract/Summary:**

Anesthetic protocols in greyhound dogs have historically been a challenge due to the changes in drug metabolism in animals with reduced body fat. This study examined 16 greyhounds that underwent a recently introduced anesthetic protocol for various surgical procedures. The purpose was to specifically examine the effects of dexmedetomidine as a pre-anesthetic agent in Greyhounds in comparison to a control group of Labrador Retrievers, America's most popular breed. Anesthetic monitoring parameters were not significantly different between the two groups. The results indicate that dexmedetomidine is a safe and effective pre-anesthetic agent in Greyhound dogs.

**Project Dissemination:****Publications:**

Jordan D. Wuthrich, BA, RVT, Kimberly M. Peterson, DVM, Rebecca Miculinich, PhD. "The Effects of Dexmedetomidine on Greyhounds during General Anesthesia," 2010 (submitted-under review). Journal of the American Veterinary Medical Association.

**Poster Presentation:**

Jordan D., Wuthrich, BA, RVT, Kimberly M. Peterson, DVM, Rebecca Miculinich, PhD. "The Effects of Dexmedetomidine on Greyhounds during General Anesthesia," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

Student has accepted employment at Purdue University School of Veterinary Medicine in the Department of Anesthesia as a direct result of the work on this project.

## ***DEPARTMENT OF BIOLOGY AND CHEMISTRY***

### **ALEXIA CALLIHAN**

**Major:**

Biology

**Faculty Mentor:**

Allen Risk

**Research/Project Title:**

Plant Biodiversity Surrogacy and Bryophyte Species Richness at Different Spatial Scales

**Project Abstract/Summary:**

The purpose of the research was to analyze the biodiversity of bryophytes at different spatial scales. This project is part of a broader study dealing with biodiversity surrogacy between different plant groups at Spaws Creek Gorge in Menifee County, Kentucky. The study design included 10 x 20 m plots with sub-plots of 1 x 1 m and 3.16 x 3.16 m in the NW and SE corners for biodiversity analysis at different scales. All species were collected within each 1 x 1 m, 3.16 x 3.16 m, and the entire 10 x 20 m plot. One hundred and three bryophyte samples were collected from four different plot locations. Thus far, 50 samples have been fully identified. The bryophyte specimens were dissected and examined by microscope and then identified with help from taxonomic keys from various texts using morphological features and growth patterns as a source of species discrimination. There is not enough data so far to support any conclusions regarding trends in biodiversity surrogacy and diversity at different spatial scales. Funding was provided by a grant from the Kentucky Academy of Science and an Undergraduate Research Fellowship from Morehead State University.

**Project Dissemination:**

Callihan, Alexia and Risk, Allen C. (2010, April). "Plant Biodiversity Surrogacy and Bryophyte Species Richness at Different Spatial Scales," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **TYLER ELAM**

### **Major:**

Biology/Pre-Med

### **Faculty Mentor:**

Allen Risk

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

Presence and Function of UmuD and UmuC Homologs in Acinetobacter

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

DNA is vulnerable to mutation through elements such as UV irradiation, so to protect genomes, organisms contain certain gene sequences to combat damage, such as the umuDC operon which is required for the error prone SOS mutagenesis response to DNA damage. The gram-negative bacterium *Acinetobacter baylyi* has a unique umuDC operon. Tyler has tested whether the unusual umuD gene found in *Acinetobacter baylyi* can complement the umuD deficiency of an *E. coli* umuD mutant strain. We developed an SOS mutagenesis assay that shows SOS mutagenesis occurring in wild type *E. coli* cells: 100-fold greater frequency of antibiotic resistance was observed after DNA damage than in unexposed cells. IIs. We acquired a strain of *E. coli* that is an umuD mutant strain, and Tyler observed that that the umuD mutant strain does not exhibit any induced antibiotic resistance, indicating it cannot perform SOS mutagenesis. We have now inserted the *Acinetobacter* umuD gene into the *E. coli* umuD mutant, and have found that the *Acinetobacter* umuD does not seem to complement the activity of the *E. coli* umuD mutant.

### **Project Dissemination:**

#### **Oral Presentation:**

Elam, Tyler, "Diverse Capacities for DNA Damage Responses Across the Genus *Acinetobacter*," Kentucky Academy of Sciences, November, 2009.

#### **Poster Presentations:**

Elam, Tyler, "Genetic Manipulations and Presence of UmuDC Operon in *Acinetobacter*," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2009.

Tyler Elam and Dr. Janelle Hare have submitted an abstract for a poster presentation at the 110<sup>th</sup> General Meeting for the American Society of Microbiology, to be held in May, 2010, in San Diego, CA. This is an international meeting.

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

Tyler Elam won first place in the Undergraduate Microbiology oral presentation competition at the 2009 General Meeting of the Kentucky Academy of Sciences at Northern Kentucky University.

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

Attend Medical School at Pikeville Osteopathic College (Graduated MSU in December, 2009).

## **WILLIAM HANKINSON**

### **Major:**

Biology

### **Faculty Mentor:**

Michael Fultz

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

Effect of Rho Kinase Inhibition on the Cytoskeleton in the Contracting A7r5 Smooth Muscle Cell

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

It has been suggested that differential remodeling of the alpha- and beta- actin cytoskeleton may explain the unique contractile properties exhibited by smooth muscle. However, the molecular mechanism(s) regulating this remodeling are not understood. The goal of this project was to test the hypothesis that inhibition of Rho kinase would alter remodeling of the alpha- and beta- actin cytoskeleton in A7r5 smooth muscle cells. Cells treated with the specific rho kinase inhibitor Y-27632 before and after stimulation with PDBu demonstrated the inability to undergo alpha-actin remodeling. In addition, resting A7r5 cells exposed to Y-27632 demonstrated a drastic disruption of the alpha-actin cytoskeleton. Interestingly, beta-actin appears to be less susceptible to disruption by rho kinase inhibition. This implicates a critical role of Rho kinase in alpha-actin dynamics in smooth muscle and supports the model of differential actin isoform remodeling.

### **Project Dissemination:**

#### **Oral Presentations:**

W.R. Hankinson, S. Pike, J.M. Maione, and M.E. Fultz. "Effect of Rho Kinase Inhibition on Alpha-actin, Beta-actin, and Myosin Remodeling in the Contracting A7r5 Smooth Muscle Cell," 95th Annual Meeting of the Kentucky Academy of Science, Northern Kentucky University, Highland Heights, KY, November, 2009.

William R. Hankinson, Josie Maione, Suzette Pike, and Michael E. Fultz. "Rho-kinase Activity is Necessary for Alpha-actin Podosome Formation and Maintenance in A7r5 Smooth Muscle Cells," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Biology and Chemistry Pre-Pharmacy Student of the Year.

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

Accepted into University of Kentucky School of Pharmacy.

**GAVIN HOWINGTON****Major:**

Chemistry/Pre-Pharmacy

**Faculty Mentor:**

Janelle Hare

**Research/Project Title:**

Expression of UmuD in Acinetobacter and Escherichia Coli

**Project Abstract/Summary:**

DNA is vulnerable to mutation through elements such as UV irradiation, so to protect genomes, organisms contain certain gene sequences to combat damage, such as the umuDC operon which is required for the error prone SOS mutagenesis response to DNA damage. The gram-negative bacterium Acinetobacter baylyi has a unique umuDC operon in that the umuD gene encodes an extra N-terminal domain. Biochemical analyses of the full length UmuD protein and an investigation into the potential self-cleavage of UmuD will be conducted with Western blot analyses. We have shown that UmuD is expressed in both Acinetobacter ADP1 and Escherichia coli cells, where it is unstable in the presence of the DNA damaging agent mitomycin C. This instability is RecA-dependent in E. coli, as the SOS response model would predict. Future work will be investigating the timing of this reaction.

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

Wheeler, Sara, Gavin Howington and Janelle Hare. "UmuD Expression in DNA Damaged and Undamaged Acinetobacter and Escherichia Coli Cells," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2009.

**Awards and/or Honors:**

N/A

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

Matriculation at University of Kentucky Pharmacy School, Fall 2010.

**BRITNEY HURON****Major:**

Environmental Science

**Faculty Mentor:**

Brian Reeder

**Research/Project Title:**

Assessment of Primary Productivity in Different Wetland Habitats

**Project Abstract/Summary:**

Ms. Huron's project was limited to one semester. Britney took measurements of incident solar thermonuclear radiation and modeled the relationship to primary productivity measured using the diel oxygen technique and solar insolation. She converted these measurements to allow the development of an ecosystem simulation model using STELLA software. She also developed preliminary models of energy flow relationships between numerous aquatic state variables: phytoplankton, bacteria, zooplankton, and fish. Britney also attended weekly presentations by graduate students and outside researchers as part of the Biology and Chemistry Seminar Series.

**Project Dissemination:**

Not realistic at current time, given she just started this January. Field projects generally require at least a year to create viable data. If Britney had spent time working on a presentation of her minimal data, she would have completed substantially less research. Creating and presenting a poster would have squandered about 25% of her limited time--detracting from actual work on the research project.

**Awards and/or Honors:**

Outstanding Student in Regional Analysis and Public Policy  
Outstanding Student in Biology and Chemistry  
Commencement Speaker, MSU 2010 Spring Graduation Ceremonies

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

Britney has numerous offers for graduate fellowships and job opportunities at the USEPA.

## **JACOB JORDAN**

**Major:**

Biology/Pre-Pharmacy

**Faculty Mentor:**

Doug Dennis

**Research/Project Title:**

Analyses of Polyhydroxyalkanoate Inclusion Biogenesis

**Project Abstract/Summary:**

Jacob has continued his work on atomic force microscopy of cellular structures. We have made good progress and presented a talk at the Celebration of Student Scholarship. I am also presenting the work at the International Meeting of AFM in Biomedicine.

**Project Dissemination:**

**Oral Presentation:**

Jordan, J. and Stacy, T. "Atomic Force Microscopy Analyses of Bacterial Cellular Structures Released using a Novel Lysis Procedure," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010. It will also be presented at an international meeting and a manuscript is being written.

**Awards and/or Honors:**

N/A

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

N/A

## **MARISSA KAMELGARN**

**Major:**

Biology

**Faculty Mentor:**

Geoffrey Gearner

**Research/Project Title:**

Assessment of the Density and Source of E. coli Contamination in the Triplett Creek Watershed

**Project Abstract/Summary:**

Sections of the Triplett Creek Watershed have been identified as impaired for their designated use by the Kentucky Division of Water. Excessive levels of Escherichia coli bacteria contribute to the impairment. The purpose of this study is to assess the occurrence and density of E. coli in 34 sampling sites throughout the watershed over a 12-month period. Monthly sampling of the watershed commenced in July 2009. Additionally, two seasonal five samples in 30 days events were conducted for summer and fall 2009. EPA Method 1640, which utilizes mTEC medium, was employed to detect and enumerate E. coli in the collected water samples. Numerous sites in the watershed exhibited E. coli densities that exceeded the KDOW standard of 130 E. coli CFU/100 mL (a geometric mean of five samples collected within 30 days) and/or 240 E. coli CFU/100 mL (single sample counts). These data indicate that sections in the watershed continue to exhibit impairments. These data will be used to develop a watershed based plan that will address the impairments through the selection and implementation of appropriate best management practices. Marissa has worked as part of our laboratory team since January 2010, and has become competent in the lab methods required of the project. Marissa has shown a genuine interest in the work, has demonstrated a willingness to stay with a given day's activities until all of the work is complete, and looks forward to working in the lab next year. In addition to this project, Marissa is participating in a pilot study that explores the use of antibiotic resistance factor genes as markers of watershed contamination.

**Project Dissemination:**

**Poster Presentations:**

Platt, K. A. Potter, N. Shields, B. Moore, M. Kamelgarn, A. Haight, and G. W. Gearner. 2010. "Escherichia Coli Host Source Tracking in the Dry Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

Moore, B., K. Platt, M. Kamelgarn, N. Shields, A. Haight, and G. W. Gearner. 2010. "Escherichia Coli Contamination of the Triplett Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A



## **SAM KEMMER, JR.**

### **Major:**

Biology

### **Faculty Mentor:**

Allen Risk

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

Woody Plant Community Structure and Dendrochronology Studies of Spaws Creek Gorge, Menifee County, Kentucky

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

The first goal of the research was to quantitatively characterize the woody vegetation within permanent 10 X 20 m plots in Spaws Creek gorge, Menifee County, Kentucky. This was accomplished for six plots divided into two sets (one set on a north-facing slope; the other set on a south-facing slope), each set being arrayed along an elevation gradient (creek middle slope, cliff base). Importance values were calculated for each species by aspect and by elevation. The importance values represent, for each species, the sum of relative percent frequency, relative percent density, and relative percent size. Hemlock had the highest importance value on both aspects for all species, with a higher value (139) on the north-facing slope than on the south-facing slope (94). Tulip tree had highly similar importance values on both aspects. Northern red oak was much more abundant on the north-facing slope (IV=52) than on the south-facing slope (IV=0). Sycamore was prominent in the creek level plots (IV=44), but was absent from the middle slope and cliff base plots. Hemlock had high importance values at all elevations. A second objective was to core all trees with a diameter greater than 10 cm in order to determine forest age, age of individual layers of the forest, and to develop a chronosequence of forest disturbance events. Thus far, all qualifying trees within the same six plots as above have been bored and the cores dried. Approximately half of these cores have been processed and are now ready for annual ring mensuration and aging.

### **Project Dissemination:**

#### **Oral Presentation:**

Kemmer, S.W. Jr., and A.C. Risk, 2010. "Tree Ring and Forest Disturbance Analysis of Spaws Creek Gorge, Menifee County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

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

N/A

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

N/A

## **JOSIE MAIONE**

### **Major:**

Biology

### **Faculty Mentor:**

Darrin DeMoss

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

Effect of Rho Kinase Inhibition on the Cytoskeleton in the Contracting A7r5 Smooth Muscle Cell

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

It has been suggested that differential remodeling of the alpha- and beta- actin cytoskeleton may explain the unique contractile properties exhibited by smooth muscle. However, the molecular mechanism(s) regulating this remodeling are not understood. The goal of this project was to test the hypothesis that inhibition of Rho kinase would alter remodeling of the alpha- and beta- actin cytoskeleton in A7r5 smooth muscle cells. Cells treated with the specific rho kinase inhibitor Y-27632 before and after stimulation with PDBu demonstrated the inability to undergo alpha-actin remodeling. In addition, resting A7r5 cells exposed to Y-27632 demonstrated a drastic disruption of the alpha-actin cytoskeleton. Interestingly, beta-actin appears to be less susceptible to disruption by rho kinase inhibition. This implicates a critical role of Rho kinase in alpha-actin dynamics in smooth muscle and supports the model of differential actin isoform remodeling.

### **Project Dissemination:**

#### **Oral Presentations:**

W.R. Hankinson, S. Pike, J.M. Maione, and M.E. Fultz. "Effect of Rho Kinase Inhibition on Alpha-actin, Beta-actin, and Myosin Remodeling in the Contracting A7r5 Smooth Muscle Cell," 95th Annual Meeting of the Kentucky Academy of Science, Northern Kentucky University, Highland Heights, KY, November, 2009.

William R. Hankinson, Josie Maione, Suzette Pike, and Michael E. Fultz. "Rho-kinase Activity is Necessary for Alpha-actin Podosome Formation and Maintenance in A7r5 Smooth Muscle Cells," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

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

N/A

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

N/A

**BRITTANY MOORE****Major:**

Biology/Pre-Med

**Faculty Mentor:**

Geoffrey Gearer

**Research/Project Title:**

Assessment of the Density and Source of E. Coli Contamination in the Triplett Creek Watershed

**Project Abstract/Summary:**

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

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

Platt, K. A. Potter, N. Shields, B. Moore, M. Kamelgarn, A. Haight, and G. W. Gearer. 2010. "Escherichia Coli Host Source Tracking in the Dry Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2010.

Moore, B., K. Platt, M. Kamelgarn, N. Shields, A. Haight, and G. W. Gearer. 2010. "Escherichia Coli Contamination of the Triplett Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2010.

**Awards and/or Honors:**

N/A

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

N/A

**LOGAN MURPHY****Major:**

Biology/Pre-Med

**Faculty Mentor:**

David Saxon

**Research/Project Title:**

Continuated Investigation of the Interaction of Bisphenol A with Copper and the Potential for DNA Oxidation

**Project Abstract/Summary:**

Bisphenol A (BPA), was initially synthesized as a synthetic estrogen to promote growth of cattle and poultry. BPA was replaced by a more potent synthetic estrogen, diethylstilbestrol (DES), which was ultimately discontinued because DES caused cancer and reproductive abnormalities in humans. BPA now widely used in linings of bottles, cans, and water pipes, leaches from these items, as well as dental sealants and is found in the serum of humans. BPA is classified as an environmental pollutant known as an endocrine-disrupting chemical (EDC) and has been linked with increased risk of cancer and birth defects. Cu(II) reduction to Cu(I) by BPA was observed using BCS a Cu(I) specific -chelator. This concentration dependent response supports an electron donor capacity for BPA and is a significant step in redox events with the potential to utilize O<sub>2</sub> and form O<sub>2</sub><sup>-</sup>. This capacity of BPA and copper to participate in the production of ROS and result in oxidative damage to DNA may provide an answer in regard to the mechanisms responsible for the harmful effects produced by BPA. Incubation of double-stranded plasmid DNA in an ROS generating system of H<sub>2</sub>O<sub>2</sub> (25 μM) and Cu II (10 μM) produced strand breaks in the DNA, but neither Cu(II) nor H<sub>2</sub>O<sub>2</sub> alone produced oxidative damage to DNA, and BPA (without O<sub>2</sub>) did not alter the H<sub>2</sub>O<sub>2</sub> + Cu(II) effects. Incubations of DNA with 10 μM Cu(II) and 100, 200 or 300 μM BPA in the presence of minimal O<sub>2</sub> did not produce detectable strand breaks in DNA. There is no apparent damage to DNA under the following conditions: Increased oxygen by aeration of PBS for 60 minutes, using aquatic aeration pump), and the sequence of addition to

the reaction microfuge tube is DNA + 400uM BPA + PBS + 10uM or 100 uM Cu(II) , incubated for 3 hours at 37°C. Continued studies to determine if bubbling 95% O<sub>2</sub> into the PBS and/or adjusting the ratio of Cu(II) and BPA, and altering incubation time have not yet resulted in ROS generation and strand breaks in DNA, which would support the hypothesis that a BPA-copper dependent redox mechanism has a significant role in producing oxidative damage to DNA.

**Project Dissemination:**

**Oral Presentation:**

Logan Murphy and David Saxon. (2010, April). "Risk for DNA Damage via a Copper and Bisphenol A Reaction," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.  
2010 Kentucky Academy of Science paper presentation is planned.

**Awards and/or Honors:**

N/A

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

This experience of investigating bisphenol A, a synthetic estrogen and an environmental endocrin-disrupting chemical, may significantly contribute Mr. Murphy's understanding and application of endocrinological concepts as he continues his academic career at the Pikeville College School of Osteopathic Medicine.

**KRISTEN PLATT**

**Major:**

Biology

**Faculty Mentor:**

Geoffrey Gearer

**Research/Project Title:**

Utilizing DNA Fingerprint Analysis of Escherichia Coli Isolates to Determine Host Sources of Watershed Fecal Contamination

**Project Abstract/Summary:**

DNA fingerprinting of Escherichia coli involves isolating and purifying DNA from identified animal and environmental isolates. The purified DNA serves as a target for a polymerase chain reaction using the BOX-A1R primer. This primer anneals to a sequence in the E. coli genome that is repeatedly scattered over the genome in both orientations (5' to 3' and 3' to 5'). PCR amplifies sequences lying between adjacent BOX-A1R sequences in the proper orientation. PCR results in a number of products variable in size, and when separated by agarose gel electrophoresis, produces a pattern of bands that is referred to as a fingerprint. Previous work has shown that fingerprints can vary among different isolates of E. coli, and that isolates collected from a given host species typically have identical fingerprints. Host source tracking studies involve first producing a database of E. coli DNA fingerprints from a variety of known host sources, e.g., humans, cattle, horses, pigs, sheep, dogs, chickens, cats, and white tail deers. Analysis of the database by appropriate phylogenetic software can produce phylogenetic trees in which E. coli isolates from the same host species tend to cluster together, resulting in a "library of known host source E. coli isolates." This library consists of 92 E. coli DNA fingerprints from the aforementioned known hosts. Bacterial isolates collected from selected sites in the Dry Creek Watershed and confirmed as E. coli in the laboratory were DNA fingerprinted and compared to the "library of knowns." Dendogram analysis of the watershed E. coli isolates suggest that most of the bacteria evaluated (up to 75% from individual sampling sites) originated from humans, while a smaller number originated from domesticated animals. These data suggest that human fecal sewage is the major source of E. coli in the four Dry Creek watershed sites assessed. These data were part of technical report titled, "The Dry Creek Watershed-Base Plan" which was recently submitted to, and accepted by, the Kentucky Division of Water. Since 2007, Kristen played a major part in this project and proved to be a dedicated, persistent, and cheerful student investigator.

In addition to the DNA fingerprinting work, Kristen also worked as part of our team on another project involving the Triplett Creek Watershed. In this project, Kristen assisted in the laboratory work which evaluated the occurrence and density of E. coli in water samples collected from 34 different sites. This work commenced in July 2009, and continues to the present.

**Project Dissemination:**

**Oral Presentations:**

Platt, K. A. Potter, N. Shields, B. Moore, M. Kamelgarn, A. Haight, and G. W. Gearer. 2010. "Escherichia Coli Host Source Tracking in the Dry Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April 2010.

Moore, B., K. Platt, M. Kamelgarn, N. Shields, A. Haight, and G. W. Gearer. 2010. "Escherichia Coli Contamination of the Triplett Creek Watershed, Rowan County, Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

Kristen has been accepted to the Integrated Biomedical Science Ph.D. program at the University of Kentucky, and will start in August 2010.

**TIFFANY STACY****Major:**

Biology

**Faculty Mentor:**

Doug Dennis

**Research/Project Title:**

Analyses of Polyhydroxyalkanoate Inclusion Biogenesis

**Project Abstract/Summary:**

Tiffany has continued her work on atomic force microscopy of cellular structures. We have made good progress and presented a talk at the Celebration of Student Scholarship. I am also presenting the work at the International meeting on AFM in Biomedicine.

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

T. Stacy, J. Jordan and Dr. Douglas Dennis, 2010. "Atomic Force Microscopy Analyses of Bacterial Cellular Structures Released using A Novel Lysis Procedure, Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

Results will be presented at an international meeting. A manuscript is in preparation.

**Awards and/or Honors:**

N/A

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

N/A

**JEFFREY WENTE****Major:**

Biology

**Faculty Mentor:**

Allen Risk

**Research/Project Title:**

Toward a Methodology for Quantifying Habitat Complexity in Spaws Creek Gorge, Menifee County, Kentucky

**Project Abstract/Summary:**

The objective of the project was to develop a methodology for quantifying habitat complexity within thirty 10 X 20 m plots in Spaws Creek gorge, Menifee County, Kentucky. The future goal would then be to examine correlations between various habitat complexity metrics and plant species richness. Habitat complexity was quantified by estimating surface area of logs and boulders and by measurement of the surface area (from ground to 2 m) of snags and standing live trees. Log surface area was determined by measuring log diameter at three positions along the log length, then the mean log diameter was used to calculate a mean log circumference. The log circumference was then multiplied by log length for an estimate of log surface area. Thus far, amount of boulder in each plot has been quantified by measuring the length of each boulder greater than 1 m long. Work toward an accurate, yet efficient, way to estimate boulder surface area is ongoing. To date, five plots have been examined for habitat complexity.

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

Wente, R. and A.C. Risk, 2010. "The Impact of Plot Complexity on Plant Species Diversity at Spaws Creek in Eastern Kentucky," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **SARA WHEELER**

**Major:**

Biology

**Faculty Mentor:**

Janelle Hare

**Research/Project Title:**

Cloning and Expression of UmuD in Acinetobacter and Escherichia Coli

**Project Abstract/Summary:**

DNA is vulnerable to mutation through elements such as UV irradiation, so to protect genomes, organisms contain certain gene sequences to combat damage, such as the umuDC operon which is required for the error prone SOS mutagenesis response to DNA damage. The gram-negative bacterium Acinetobacter baylyi has a unique umuDC operon in that the umuD gene encodes an extra N-terminal domain. Biochemical analyses of the full length UmuD protein and an investigation into the potential self-cleavage of UmuD was conducted with Western blot analyses after cloning either the full length umuD gene or the mutated version of the gene lacking the extra N-terminal coding region. It appears that UmuD is expressed in ADP1 and E. coli and is cleaved in a RecA-dependent way in E. coli (as predicted by the E. coli model). Expression of the mutated version of umuD will be conducted next in functional gene expression assays after confirming protein expression.

**Project Dissemination:**

**Poster Presentation:**

Wheeler, Sara, Gavin Howington and Janelle Hare. "UmuD Expression in DNA Damaged and Undamaged Acinetobacter and Escherichia Coli Cells," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2009.

**Awards and/or Honors:**

N/A

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

N/A

## **JODI WILDER**

**Major:**

Biology

**Faculty Mentor:**

Janelle Hare

**Research/Project Title:**

SOS Mutagenesis is found in Only One Member of the Genus Acinetobacter Transformation into ADP1

**Project Abstract/Summary:**

After members of the our lab research team exposed Acinetobacter ursingii strain BAA-617 to UV light, it exhibited SOS mutagenesis. Other members of this genus do not do SOS mutagenesis, so I performed biochemical tests to confirm its identity as BAA-617. The results confirmed it as BAA-617. I used research papers with phylogenetic trees to see how this species related to other members of the genus. The results were inconclusive due to the variability in methods used to make the dendograms. We want to find out why this species displays SOS mutagenesis, so a sequence of the genes that carry out SOS mutagenesis is planned.

Also, I was working on another scope of the project trying to transform plasmid DNA into ADP1.

**Project Dissemination:**

**Poster Presentation:**

Wilder, J. Grice, A., Elam, T. J., and J. Hare. "SOS Mutagenesis is Found in Only One Member of the Genus Acinetobacter," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **DEPARTMENT OF EARTH AND SPACE SCIENCES**

### **TABITHA ALDRIDGE**

**Major:**

Geology

**Faculty Mentor:**

Thomas Pannuti

**Research/Project Title:**

A Search for X-Ray Counterparts to Optically-identified and Candidate Radio Remnants in the Nearby Face-On Spiral Galaxy M101 Using the Chandra X-ray Observatory

**Project Abstract/Summary:**

Tabitha downloaded and analyzed datasets from over 20 archival observations made of the nearby face-on spiral galaxy M101 using the Chandra X-ray Observatory. The analysis was conducted using the Chandra Interactive Analysis of Observations (CIAO) software package and involved over one million seconds of total observing time. Using standard source detection techniques, Tabitha identified X-ray counterparts to approximately six of the known supernova remnants (SNRs) in this galaxy that were found by prior optical and radio searches. Investigation of the spectral properties of these X-ray counterparts (namely the total X-ray luminosities and their X-ray "colors") revealed that these sources are comparable to known X-ray-emitting SNRs located in our own Galaxy.

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

Aldridge, T., Staggs, D. and Pannuti, T. "A Multiwavelength (X-ray, Optical and Radio) Survey for Supernova Remnants in the Nearby Galaxies M101 and NGC 4258," The Kentucky Academy of Science 95<sup>th</sup> Annual Meeting, Highland Heights, KY, November, 2008.

**Awards and/or Honors:**

Second Place, Undergraduate Research Poster Competition, Physics and Astronomy Section, Kentucky Academy of Science, November, 2009.

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

Apply for graduate programs in planetary geology.

**JACOB BURNS****Major:**

Middle Grades 9-12 Math and Science Option

**Faculty Mentor:**

Elizabeth Roland

**Research/Project Title:**

Learning in Physical Science (LeaPS): Forces and Motion and Structure and Transformation of Matter in grades 6-8

**Project Abstract/Summary:**

Learning in Physical Science (LeaPS) is a project targeted to improved content knowledge in Force and Motion and Structure and Transformation of Matter in grades 6-8 in three rural counties. The initial focus of the first year of the project was to establish a baseline of student and teacher knowledge of force and motion. Additionally, three teacher content workshops were developed and implemented in the spring term. These workshops were developed collaboratively among three institutes of higher education (UK, ECU and MSU). Coinciding with the three spring workshops, a learning progression for grades 6-8 was developed and then learning targets were identified for each grade level. From there, grade specific units were begun. Units must include 22 days of lessons, pre and post assessments with imbedded formative assessment, all handouts, and all materials. As a member of the team, we have been responsible for the analysis of 1500+ student tests administered in the fall semester. The writing of a report and presentation of report on middle school student's knowledge of force and motion. After analysis of the instrument data from the students, an analysis of the test was also conducted for reliability and validity. We have attended and assisted in the implementation of all workshops for teachers. We have begun construction of the 7<sup>th</sup> grade, 22 day unit for Force and Motion. In the fall, these units will be implemented by the participating teachers and data will be collected monitoring the conceptual knowledge of the students. Also, the second topic, Structure and Transformation of Matter will be developed with 7 teacher workshops, assessments (status and conceptual change), learning progressions, learning targets, and grade level units. This project and research is partly funded by LeaPS, Kentucky-Math and Science Partnership and the Undergraduate Fellowship Program at Morehead State University.

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

Jacob Burns and Elizabeth Roland (April, 2010) "Using a Conceptual Change Model for Developing a Force and Motion Curriculum: Phase One," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Invited Presentation:**

Elizabeth Roland and Jacob Burns (2010, January). "Preliminary Results of Middle School Students' Conceptual Understanding of Selected Force and Motion Topics," Teacher Workshop for Learning in Physical Science, Morehead, KY.

**Invited Paper:**

Jacob Burns, and Elizabeth Roland (2010). "Results of Middle School Students' Conceptual Understanding of Selected Force and Motion Topics," Unpublished Report. Report prepared for Learning in Physical Sciences. Available from Authors.

**Awards and/or Honors:**

N/A

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

N/A

**CARA DEMOSS****Major:**

Biology

**Faculty Mentor:**

Bob Twiggs

**Research/Project Title:**

GLIOLAB-NANORACKS: A University Platform for a Biomedical Mission

**Project Abstract/Summary:**

GlioLab (NanoRacks) is a joint project between GAUSS-Group of Astrodynamics at the "Sapienza" University of Roma and the Morehead State University (MSU) Space Science Center in Kentucky. This project uses 3U CubeLabs (GlioLab) that enables researchers to perform biomedical experiments in microgravity. GlioLab is then inserted into NanoRacks, a framework providing low-cost research opportunities and access to space, for delivery to the International Space Station (ISS).

The primary objective of GlioLab is to investigate if the combined effects of microgravity and ionizing radiation increase or decrease the survival rate of cancer cells affected by Glioblastoma multiforme (GBM). Glioblastoma is the most common and aggressive type of primary brain tumor, accounting for 52% of all primary brain tumor cases and 20% of all intracranial tumors.

For this type of cancer, radiotherapy is the only treatment that increases the median survival time. Radiation therapy is the medical use of ionizing radiation as part of a cancer treatment to control malignant cells. The biological effects of ionizing radiation and microgravity on the human body in space are key concerns for space exploration and, at the same, potentially provide successful biomedical applications and treatments. While radiotherapy is used on the ground for curative or adjuvant cancer treatment, it is possible that the combined effects of ionizing radiation and microgravity in space could either increase or decrease the survival rate of GBM cancer cells.

During a thirty-day mission on the ISS, this GlioLab mission will test in orbit the behavior of glioblastoma cancer cells, which are extremely fragile and require complex prelaunch experimentation and testing, along with healthy neuronal cells. A cell set similar to the one in orbit will be monitored in parallel on the ground to accurately compare cell behavior in a terrestrial environment to the one in orbit to understand possible differences.

Biological support on the ground is vital to the success of this GlioLab-NanoRacks experiment and involves the MSU Biology and Chemistry Department and IRCCS-Hospital Medical Genetics Services in San Giovanni Rotondo. The Italian research group retains the patent on this type of glioblastoma cell line and has a wealth of experience performing experiments with this fragile cell line. The MSU group has experience in cellular biology and operates a laboratory where numerous experiments will be performed representing the control experimental set.

The undergraduate biology student researcher's responsibility is to work with the research team to design the GlioLab experiment, manage and operate the control experiments (using both glioblastoma cancer cells and with healthy neuronal cells) in a controlled environment to help determine the correct number of cells needed to load into the flasks, refine cell culture matrix, and perform vibration and other pre-launch testing on the cells, and control testing of the cell line simultaneously with the on-orbit experiment. The undergraduate student's role in these experiments will provide invaluable experience and greatly assist in completing the research benchmarks.

**Project Dissemination:**

N/A

**Awards and/or Honors:**

N/A

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

N/A

## **BRANDON MOLTON**

### **Major:**

Space Science

### **Faculty Mentor:**

Ben Malphrus

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

Development of a Flatsat Version of the KySat-1 Orbital Satellite for Software Testing and Subsystems Development

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

The Kentucky Satellite (KySat) consortium is a collaborative effort of public and private partners throughout the state of Kentucky focused on small satellite development and access to space for small payloads. KySat's ultimate goal is to solicit public and private payloads for an on-going series of launches of near-space, sub-orbital and orbital missions. The KySat consortium has developed a bus standard, utilizing a combination of Commercial-Off-the-Shelf (COTS) CubeSat class technology that is rapidly establishing itself for access to space worldwide and proprietary technology for which the consortium is rapidly developing a flight heritage. The use of the KySat bus based on components available for the PC-104 form factor mitigates risk while minimizing the development time and maximizing the performance of the bus.

The satellite bus consists of a command and data handling processing module, system support module (SSM), amateur band radio, electrical power system, solar arrays, and a payload interface module (PIM). The SSM and PIM (along with other subsystems including solar cell boards, antennas and deployment systems, etc.) were developed exclusively by the student team. The C&DH system along with the transceivers and on-board camera are modular COTS systems that conform to the cubesat standard. The processing module consists of a Texas Instruments MSP430 microcontroller, mass data storage interface as well as the supporting interface circuitry. It is provided by Pumpkin Inc. The system support module is a custom module that provides additional necessary functionality to the space craft bus. The primary communication system is based on a commercially available transceiver purchased from the StenSat Group. It transmits in the UHF, 436.795 MHz, at one watt equivalent isotropically radiated power (EIRP) and receives in the VHF band, 145.850 MHz, with a sensitivity of 113 dBm. The electrical power system, purchased from Clyde Space out of Scotland, interfaces with the solar arrays as well as four lithium polymer batteries. The solar arrays are made with custom printed circuit boards that combine improved triple junction solar cells (TASC) from SpectroLab with the protection circuitry necessary for reliable operation. The payload interface module is a custom system that allows the bus to communicate and interface with the payloads onboard the spacecraft. The space craft structure consists of a chassis constructed from sheet aluminum that has been hard-anodized and alodined with stainless steel fasteners also provided by Pumpkin Inc. The entire space craft conforms to the CubeSat Design Specification (CDS).

The purpose of this project is to develop a Flatsat version of the KySat-1 Orbital system. Flatsats were developed by NASA as a form factor for development and testing of satellite subsystems. Currently, software systems are being developed (flight support software and ground station software) and flight hardware systems are being tweaked and tested. The Flatsat form factor will be developed during this project to facilitate these efforts.

### **Project Dissemination:**

#### **Poster Presentation:**

Brandon L. Molton and Kathleen M. Brown, "Development of FlatSat, a New Version of KySat-1 Orbital for Software Testing and Subsystems Development," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

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

N/A

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

N/A

## **TYLER ROSE**

### **Major:**

Space Science

### **Faculty Mentor:**

Bob Twiggs

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

Development of a TubeSat PicoSatellite for the InterOrbital Launch Vehicle System

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

Morehead State University's Space Science Center has signed a launch contract with InterOrbital Systems Inc., an innovative launch vehicle (LV) company from Mojave, CA, that has developed a revolutionary launch concept, for two suborbital launches and one orbital launch of a pico-class satellite system known as "TubeSat". Interorbital Systems (IOS) is developing a new generation of low-cost, rapid-response manned and unmanned orbital launch



vehicles. NEPTUNE Modular Series rockets are designed for minimum cost and maximum reliability. IOS is currently developing the NEPTUNE Modular Series of manned and unmanned orbital and interplanetary launch vehicles. The basic building block of the NEPTUNE Modular Series rockets is the Common Propulsion Module (CPM). By clustering the CPMs, several launch vehicles can be configured for specific space mission requirements. The new IOS TubeSat is designed as a low-cost alternative to the CubeSat. It has three-quarters of the mass (0.75-kg or 1.65-lb) and volume of a CubeSat. A TubeSat is designed to function as a Basic Satellite Bus or as a simple stand-alone satellite. TubeSats include all components of a major satellite including: satellite's structural components, safety hardware, solar panels, batteries, power management hardware and software, transceiver, antennas, microcomputer, and software systems required for its operation. Uses of TubeSats include:

- ▼ Earth-from-space video imaging
- ▼ Earth magnetic field measurement
- ▼ Satellite orientation detection (horizon sensor, gyros, accelerometers, etc.)
- ▼ Orbital environment measurements (temperature, pressure, radiation, etc.)
- ▼ On-orbit hardware and software component testing (microprocessors, etc.)
- ▼ Tracking migratory animals from orbit
- ▼ Testing satellite stabilization methods
- ▼ Biological experiments
- ▼ On-orbit advertising

This project will entail the design, development, construction, and testing of a prototype TubeSat intended to fly on suborbital (and ultimately orbital) InterOrbital flights in 2010 and 2011.

**Project Dissemination:**

T. Rose and B. Twiggs, "Designing an Interorbital TubeSat at Morehead State University," 7<sup>th</sup> Annual CubeSat Developer's Workshop, California Polytechnic State University, San Luis Obispo, CA, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## ***DEPARTMENT OF HEALTH, WELLNESS, AND HUMAN PERFORMANCE***

### **LAURA STACY**

**Major:**

Exercise Science

**Faculty Mentor:**

Gina Blunt and Jennifer Dearden

**Research/Project Title:**

Dietary Supplement Knowledge, Attitudes, and Behaviors among Health, Wellness and Human Performance Students

**Project Abstract/Summary:**

In the United States, the dietary supplement industry is a multi-billion dollar market, which is not regulated strictly by the Food and Drug Administration (FDA). This can lead to problems with contamination, harm to the user, fraud and negative interactions with other supplements and drugs. There is a lack of research on attitudes toward dietary supplement safety, reasons for use, and sources of dietary supplement information in a college population. Therefore, the purpose of this study was to better understand the attitudes and behaviors of dietary supplement use in a college population. Students from four classes in the Health, Wellness and Human Performance department at Morehead State University were asked to participate in the study. Classes were chosen by targeting one upper level course in each of the three majors (Exercise Science, Health Promotion and Physical Education) in the department, as well as a lower level general education class in the department. Participants were asked to complete a survey which asked questions on supplements used, reasons for use, perceived safety of supplements, recommendations for use, and where knowledge is retrieved. Participation in the survey was completely voluntary. A total of 100 Morehead State University students in Health Wellness and Human Performance (HWHP) classes participated in the study. Participants consisted of 43 males and 57 females with ages ranging from 18-40. The majority of the students were upperclassmen (17% freshman, 11% sophomores, 50% juniors, 22% seniors) with 27% of the students classified as athletes. When asked if they currently take or have taken a dietary supplement, 68% of the participants answered "yes". When participants were asked who they felt was qualified to administer supplement information, the majority felt that medical doctors (96%) and registered dietitians (85%) were the most qualified. When asked who they received advice from on dietary supplements, 44% of the participants answered they received their advice from a friend (non-health care provider). When participants were asked where they received their dietary supplement information, the majority (71%) collected information from the internet (see table 2

for other sources). Participants were asked to rate how safe they felt each supplement was on a scale of 1 to 5 (1=no risk, 5=very high risk). Weight loss supplements (mean 4.1) were rated the highest risk, followed by megadosing (mean 3.5). Vitamin and mineral combinations were rated the lowest risk (mean 1.2). No differences were found between athletes and non athletes on how they rated the safety of 22 different supplements (p values ranged from .082 to .098). Future plans include revision of questionnaire according to project limitations and survey additional participants from a variety of majors.

**Project Dissemination:**

**Poster Presentation:**

Stacy, L., Blunt, G., Dearden, J. "Dietary Supplement Knowledge, Attitudes, and Behaviors among Health, Wellness and Human Performance Students," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

Proposal turned in to KAHPERD conference for October, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## ***DEPARTMENT OF INDUSTRIAL AND ENGINEERING TECHNOLOGY***

### **JARED MAY**

**Major:**

Engineering Technology

**Faculty Mentor:**

Nilesh Joshi

**Research/Project Title:**

Integrated Risk Based Inventory Classification System

**Project Abstract/Summary:**

Inventory classification and management is a complex task and a lot of research has been done in this area. As part of this research project, we developed an integrated risk-based inventory classification (IRIC) system. The developed methodology identified and grouped various inventory attributes in three major categories: performance efficiency, risk, and cost. A weighted sum approach was used to combine the inventory attributes within each category to form a master attribute for each of the three categories. Finally, the Euclidean distance-based clustering algorithm was used to measure the overall similarity between pairs of inventory items and to classify the items in difference bins based on their closeness to each other. The key objectives accomplished in this project are as follows: 1) an extensive literature review of existing inventory classification and management methodologies, 2) development of the IRIC methodology that addressed some of the shortcomings of existing classification methodologies, and 3) development of the excel-based IRIC system prototype software using embedded visual basic macros. This research work was funded in part by the Office of Research and Sponsored Programs at Morehead State University and the Undergraduate Research Fellowship Program.

**Project Dissemination:**

**Oral Presentations**

Jared May and Professor, Nilesh Joshi, "Integrated Risk-based Inventory Classification System," ATMAE Annual Conference, Panama City Beach, FL, October, 2010.

Jared May and Professor, Nilesh Joshi, "Integrated Risk-based Inventory Classification System," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

Jared May will be pursuing Master of Science in Engineering Technology at Morehead State University beginning in the Fall, 2010 semester. He will be a graduate assistant in the Department of Industrial and Engineering Technology.

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

### **JAMES ADKINS**

**Major:**

Physics

**Faculty Mentor:**

Jennifer Birriel

**Research/Project Title:**

Measuring Night-Sky Brightness and Light Pollution Emissions in Eastern Kentucky Using a Portable Spectrophotometer

**Project Abstract/Summary:**

Light pollution is a pervasive form of environmental pollution that plagues our modern world. Light pollution is quite simply the alteration of natural light levels in the night sky due to man-made lighting sources. It reduces our view of the heavens, making many celestial objects difficult, or impossible to see. More importantly, light pollution has a well-documented negative impact on nearly every aspect of nocturnal wildlife: this includes disruption of feeding, mating, and migration patterns of bats, frogs, salamanders, birds, etc. In addition, light pollution represents a colossal waste of energy. This project will use commercially available equipment to develop and use a portable CCD camera/spectrograph system to rapidly measure night sky brightness and emissions in the Daniel Boone National Forest and surrounding areas. Documenting and monitoring light pollution is a first step towards combating the problem of light pollution. We have used several commercially available digital camera systems to document night sky brightness both on campus and at Cave Run Lake. We have also used a portable light meter to measure light pollution as a function of altitude and azimuth. Our future plans are to use an digital camera systems such as SLRs and astronomical CCD cameras equipped with a fish-eye lens to produce full-sky images for brightness measurements.

**Project Dissemination:**

**Poster Presentations:**

J. Kevin Adkins and Jennifer J. Birriel, "Documenting Night Sky Brightness with Commercially Available Digital Cameras," Regional (Zone 8) Meeting of the Society of Physics Students, Indiana University, Bloomington, IN, April, 2010.

J. Kevin Adkins and Jennifer J. Birriel, "Using Commercial Digital Cameras to Document Night Sky Brightness in Morehead, KY," Meeting of the KY Academy of Science, Northern KY University, Covington, KY, November, 2009.

**Submitted Paper:**

Jennifer J. Birriel and J. Kevin Adkins, "A Simple, Portable Apparatus to Measure Night Sky Brightness at Various Zenith Angles," Journal of the American Association of Variable Star Observers, submitted and under review, May, 2010.

**Awards and/or Honors:**

N/A

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

Mr. Adkins will graduate in May, 2011, with a double B.S. in both mathematics and physics. He plans to pursue a PhD in physics upon graduating from MSU.

### **EVAN BOYD**

**Major:**

Mathematics

**Faculty Mentor:**

Christopher Schroeder

**Research/Project Title:**

Ranking College Football with Random Walkers

**Project Abstract/Summary:**

There is a lot of concern with the way college football teams are being ranked, and many systems have been designed to address this issue. We considered some of these systems, and one in particular which uses a random walker algorithm. We showed how adding a home-field advantage factor to this particular system affected the overall rankings for the 2009 season. We compared the results of our modified ranking system with the original random walker rankings which considered only wins and losses.

My results showed a positive correlation to the winner of the 2010 National Championship team. This system consistently placed Alabama above Florida on a weekly basis, despite that in the actual AP Polls Florida was ranked #1 year-round. When my results were compared to the original system, the rankings did in fact change depending on the home and away records of each team, not just the outcome.

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

Boyd, E. "Ranking College Football with Random Walkers," Kentucky MAA.

Boyd, E. "Ranking College Football with Random Walkers," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

**JOSHUA BRADLEY****Major:**

Computer Science

**Faculty Mentor:**

Sherif Rashad

**Research/Project Title:**

Mobile Data Mining Algorithms for 4G Mobile Networks

**Project Abstract/Summary:**

The goal of our research is to develop novel mobile data mining algorithms that can be used in the mobile environment to support new services and to enhance the current services with the new integrated structure in the 4G mobile networks. These algorithms will accurately predict mobile user movements across all networks within the 4G network. This will allow for an enhanced consolidation of computing resources, improved signal reception, and the future establishment of location-based services within the 4G mobile network. Our focus for algorithm development stems from two perspectives, the individual mobile user and the individual base station. We have developed a new version of MobileSPADE algorithm that takes into account past movements made by a mobile user within the network and implements the idea of time frames to improve prediction accuracy. By utilizing time frames, we can derive frequent sequential itemsets of past mobile movements made within a certain period of time (i.e. 6:00 AM - 12:00 PM), which are then only considered in the prediction of that particular time. Knowing where a person will go will allow network service providers to not only project future traffic flow throughout their network, but also allocate more resources to the areas in the network with greater traffic density, thereby preventing possible network bottlenecks and other network vulnerabilities. Experimental results show that the new version of MobileSPADE algorithm exhibits remarkable performance results in the prediction of future mobile decisions for predictable mobile users. We will focus in our future work on using new mobile data mining techniques to develop new models that will allow base stations and access points to rank neighboring base stations and access points according to the amount of traffic between different nodes in the network. This will allow network service providers to develop new load balancing techniques for the 4G mobile networks.

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

Joshua Bradley and Sherif Rashad, "Mining Mobile Sequential Patterns in Wireless Cellular Networks," Proceeding of the International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 2009), Third International Conference on Telecommunications and Networking (TeNe 09), December, 2009.

Joshua Bradley and Sherif Rashad, "Mobile Data Mining Algorithms for Prediction of Mobile Nodes in Wireless Networks," 2009 Kentucky Academy of Science Annual Meeting.

Joshua Bradley and Sherif Rashad, "Mobile Data Mining Algorithm for the 4G Mobile Network," 2010 Kentucky Mathematical Association of America Annual Meeting.

Joshua Bradley and Sherif Rashad, "Data Mining the 4G Network," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Selected as 1/278 recipients nationwide to receive the 2010 Barry M. Goldwater Scholarship.

Selected as 1/20 students nationwide as a participant in the Computer Science Internship Program (CSIP) held at the National Security Agency (NSA), Summer 2010.

1<sup>st</sup> Place in the 2009 Kentucky Academy of Science Undergraduate Research Competition, Computer and Information Sciences Section.

Recipient of the 2010 C. Rodger Hammons Award, Department of Mathematics, Computer Science, and Physics, Morehead State University.

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

PhD in computer science or computational mathematics.

## CHRISTOPHER ESTES

### Major:

Computer Science

### Faculty Mentor:

Sherif Rashad

### Research/Project Title:

Intrusion Detection in Mobile Networks using Data Mining Techniques

### Project Abstract/Summary:

As wireless networks become more prominent in our society, security for these networks is a growing issue. Due to the lack of a physical infrastructure these networks are much easier to infiltrate and many old security solutions no longer work. The problem of Intrusion detection becomes more difficult in integrated 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 intrusion detection techniques for mobile networks using data mining technology. We focused on the anomaly detection side of intrusion detection and we utilized a combination of clustering and classification algorithms in order to build a normal profile for a mobile user, so that any intrusions can be tested against this pattern and found quickly. We worked with the K-Means clustering algorithm and looked at various other algorithms such as Apriori, Support Vector Machines, and Frequent Pattern Trees. Our goal is to find the most time efficient algorithm for developing a normal profile and responding to intrusions. We used the K-means clustering algorithm to cluster the data into two groups (intrusion data and normal data). The distance between each data member and both centroids is calculated to assigns it to the cluster with the closest centroid. The clustering process will stop when a specified maximum error rate has been met. The results we received by using data mining techniques are very promising. We will continue in our future work to design and implement new algorithms to improving the speed and memory efficiency of the intrusion detection process.

### Project Dissemination:

#### Poster Presentations:

Christopher Estes and Sherif Rashad, "Intrusion Detection in Wireless Mobile Networks," 2009 Kentucky Academy of Science Annual Meeting.

Christopher Estes and Sherif Rashad, "Intrusion Detection in Mobile Wireless Networks Using Data Mining Techniques," 2010 Kentucky Mathematical Association of America Annual Meeting.

Christopher Estes and Sherif Rashad, "Intrusion Detection in Mobile Wireless Networks Using Data Mining Techniques," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

### Awards and/or Honors:

3<sup>rd</sup> Place in the 2009 Kentucky Academy of Science Undergraduate Research Competition, Computer and Information Sciences Section.

Outstanding Computer Science Sophomore Student Award, Department of Mathematics, Computer Science, and Physics, Morehead State University, May 2010.

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

N/A

## JAMES GIBBS

### Major:

Computer Science

### Faculty Mentor:

R. Duane Skaggs

### Research/Project Title:

The Sum Cost of Sum Graphs

### Project Abstract/Summary:

The sum graph of a finite set of positive integers is formed by labelling vertices with the integers in such a way that the vertices labelled  $u$  and  $v$  are adjacent if and only if  $u + v$  is a label as well. The sum cost of a sum graph is the minimum sum over all valid labellings of a sum graph. Sum graphs have applications in graph compression. Rather than requiring a large amount of data to record relationships among entities, a relatively short list of integers is all that is required.

During this project, the Fellow assisted in the calculation of the sum cost of various classes of graphs. Particular attention was paid to graphs that are useful in real-life applications to computer networks and social networks.

### Project Dissemination:

#### Publication:

G.H. Fricke, J.F. Gibbs, F.N. Harary, R.D. Skaggs, and J.A. Ward, "The Sum Cost of Sum Graphs," 10 pages (paper submitted for publication).

**Awards and/or Honors:**

N/A

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

After graduation, Mr. Gibbs took a programming position with a research and development firm, working on problems related to autonomous robotics. He has applied for graduate school, with the intent of earning a doctorate in computer science.

**DOUGLAS HAASE****Major:**

Math

**Faculty Mentor:**

Jennifer Birriel

**Research/Project Title:**

Establishment of an Online INSPIRE VLF Receiver at MSU to Monitor Natural and Man-made Very Low Frequency Radio Waves

**Project Abstract/Summary:**

Lightning produces both a visible flash and an audible sound; however, lightning interacting with the Earth's ionosphere also produces very low frequency (electromagnetic) radio waves that can only be detected with specialized receivers. The study of VLF waves allows scientists to monitor and explore the conditions in both Earth's ionosphere and magnetosphere. The student will construct and test a 3rd generation INSPIRE receiver for use at MSU. (INSPIRE is an acronym for "Interactive NASA Space Physics Ionospheric Radio Experiments" and is a fairly simple and economical system developed by NASA scientists specifically for high school and college programs.) The student will develop a permanent site for the INSPIRE receiver and establish an online, live-streaming site. The data generated from this site will enable students at MSU and regional high schools to monitor both natural VLF waves and identify and monitor man-made VLF waves as well and contribute to the understanding of our planet's atmosphere and weather. We have successfully ordered all parts necessary to enclose the device in a weather-proof box. A skeleton website has been developed. The noise isolation unit has proved difficult to obtain and we are also looking at making significant modifications to the original technical design to ensure successful long-term operation of the device on the roof of Lappin Hall.

**Project Dissemination:**

Douglas M. Haase and Jennifer J. Birriel, "Development of an Online INSPIRE VLF-3 Receiver at Morehead State University," meeting of the Kentucky Academy of Science, Northern Kentucky University, Covington, KY, November, 2010.

**Awards and/or Honors:**

2010 Outstanding Junior Student in Physics

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

N/A

**JULIE LANG****Major:**

Math

**Faculty Mentor:**

Dora Ahmadi

**Research/Project Title:**

Analysis of the College Algebra Project

**Project Abstract/Summary:**

Through this project results of the College Algebra Pilot Redesign at MSU were analyzed. Successful results led to full implementation of the College Algebra Redesign in the Spring of 2010. These results were disseminated at several conferences including the National Council for Academic Transformation 2010 Conference in Orlando, Florida.

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

Lang, J. (2009, November). "College Algebra Redesign Project at MSU," Kentucky Academy of Science, Bowling Green, KY.

Lang, J. (2010, March). "Does the Amount of Lecture Make a Difference in Learning College Algebra?" Kentucky Section of the Mathematical Association of America, Lexington, KY.

Lang, J. (2010, April). "College Algebra Redesign Project at MSU," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Julie was selected for a Research Experience for Undergraduates, Summer 2010, at Marshall University, WV.

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

Julie plans to do graduate work.

**LAUREN MAY****Major:**

Mathematics

**Faculty Mentor:**

R. Douglas Chatham

**Research/Project Title:**

Kentucky Rook Strategy

**Project Abstract/Summary:**

The ultimate goal of this project is to use simulation and game theory to determine optimal betting and playing strategies for the card game Rook. This year statistical tests were performed in order to determine if having a Rook card in the deck has an effect on the game. Results are mixed.

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

May, Lauren and Chatham, R. Douglas, "Does the Rook Card Make a Difference?" Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

May, Lauren and Chatham, R. Douglas, "Does the Rook Card Make a Difference?" Annual Meeting of the Kentucky Section of the Mathematical Association of America, Lexington, KY, March, 2010.

**Awards and/or Honors:**

Lauren May received a Second Place Poster Presentation Award in Psychology at the Kentucky Academy of Science Meeting in November 2009 and she was selected as the 2010 Outstanding Sophomore Student in Mathematics.

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

N/A

**BRIAN SALYER****Major:**

Engineering Technology/Math

**Faculty Mentor:**

Robin Blankenship, R. Duane Skaggs, and R. Douglas Chatham

**Research/Project Title:**

Studies in Separation in Graphs

**Project Abstract/Summary:**

A famous problem asks how many Queens can be placed on a chessboard of arbitrary size so that no two Queens attack each other. This question has led to many interesting applications, particularly those related to parallel computing and network communication. This project explores a recent variation of the original problem in which Pawns are permitted to separate Queens, thus allowing more Queens to be placed on the board. The question is then how many Pawns are needed in order to allow a specified larger number of Queens to be placed.

Recent work by the student and the mentors has yielded numerous publishable results, as well as open problems and potentially interesting applications. During the past year, the student and the mentors have further developed a more general framework in which to study separation and related parameters. The recent focus by the Fellow has been on developing software tools to allow the collection and interpretation of large amounts of data which is used to formulate new conjectures and disprove old conjectures. His work has enabled the group to find patterns in the data which would not have been observable without computer assistance.

Ultimately, it is expected that the results from this project may lead to improvements in the application areas of parallel computing and network communication.

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

B. Salyer, "Covering Powers of Cycles by Equivalence Relations," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Publication:**

R. Blankenship, R.D. Chatham, J.V. Harless, B. Salyer, R.D. Skaggs, and B.N. Wahle, "Covering Powers of Cycles by Equivalence Relations," to be submitted mid-May to an international research journal.

**Awards and/or Honors:**

Mr. Salyer was awarded the 2008-2009 C. Rodger Hammons Award for outstanding achievement in Computational Mathematics by the Department of Mathematics, Computer Science, and Physics. The award was based on his work on his project.

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

After graduation, Mr. Salyer has indicated plans to attend graduate school to pursue an advanced degree in civil engineering.

**DEPARTMENT OF PSYCHOLOGY****JEFFREY DOBSON****Major:**

Psychology

**Faculty Mentor:**

Ilsun White

**Research/Project Title:**

Effects of Stress on Psychostimulant-induced Behavioral Activation

**Project Abstract/Summary:**

Jeffrey Dobson was involved in our ongoing project that focused on the effects of stress on behavior, using a rodent model. Using corticosterone (CORT), a stress hormone, or physiological stress, the effects of stress on behavior were examined. Through research, Jeffrey Dobson learned some basic lab skills and conducted one animal experiment under supervision.

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

Jeffrey Dobson and Ilsun M. White, "Differential Effects of Physiological Stress and Cortisol on Simple Learning," Kentucky Academy of Science (KAS), Northern Kentucky University, KY, November, 2009.

Ilsun M. White, James A. Bradley, Jeffrey Dobson, Cory Ruffing, David D. Turner, Wesley White, "Chronic and Acute Effects of Corticosterone on Psychostimulant-induced Behavioral Activation in Rats: Influence of Amygdala," Society for Neuroscience, Chicago, IL, October, 2009.

**Published Abstract:**

White, I.M., Bradley, J.A., Dobson, J., Ruffing, C., Turner, D.D., White, W., "Chronic and Acute Effects of Corticosterone on Psychostimulant-induced Behavioral Activation in Rats: Influence of Amygdala," Society for Neuroscience Abstract, 650.17.

**Awards and/or Honors:**

Placed 3<sup>rd</sup> in Undergraduate Poster Competition (Psychology), The Kentucky Academy of Science, Northern Kentucky University, November, 2009.

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

Jeffrey Dobson will be completing his undergraduate degree in Psychology (Area) in December, 2010. Jeffrey Dobson plans to apply to a graduate program for Fall, 2011, possibly in the field of counseling/clinical psychology.

**KATELYN FUGATE****Major:**

Psychology

**Faculty Mentor:**

Shari Kidwell

**Research/Project Title:**

Parental States of Mind and Their Association with Parent-child Behavior in an Emotion Socialization Task

**Project Abstract/Summary:**

A major aim of Dr. Kidwell's larger research agenda is to develop comprehensive measures of various aspects of sensitive caregiving, and to determine their validity by showing the expected associations with other constructs. The first aspect of sensitive caregiving that was explored in this particular project involved parents taking into account their child's feelings, underlying motives, and goals (i.e., their insightfulness). We utilized the Maternal Empathic Understanding Procedure (MEUP). The MEUP asks parents to take their child's perspective in regard to the Reminiscing Task. In the Reminiscing Task, parents discussed with their child a time when they were "good" and a time when they were "bad." Guided by published research and our own observations of the interview we developed a coding system for the MEUP. Katie coded these interviews with the assistance of a graduate student, Paula Sexton. In the first presentation, the parent's MEUP classifications were strongly related in the expected direction with both parent and child attachment. Parents who had difficulty taking their child's internal perspective



tended to be insecurely attached and tended to have insecure children. In the second presentation, we examined whether parental insightfulness would be associated with their child's adjustment. We found that more insightful parents on the MEUP tended to have children with lower emotional and behavioral problems and higher self-concept.

During the course of this semester we have been exploring a second measure of caregiving sensitivity, specifically that observed during the Reminiscing Task. We have viewed many of the tasks together and read related literature, brainstorming about how to quantify the individual differences that are very evident in how parents talk to their children about the times they are "good" and "bad." We will begin coding this data in August, but the complexity of these parent-child conversations will necessitate coding throughout the academic year. Our anecdotal observations are consistent with the MEUP results above. It appears that parents of insecurely attached children want to understand their children's motivations for their behavior and try to have productive conversations with them; however, the specific manner in which they have those conversations does not facilitate reaching those goals. We believe the insights gained from this project could be very useful in terms of preventing and treating emotional and behavioral problems in children.

**Project Dissemination:**

**Oral Presentation:**

Sexton, Paula, Fugate, Katelyn, Vetter, Stacey, and Kidwell, Shari (2009). "The Apple Doesn't Fall Far From the Tree. Insightfulness and the Transmission of Attachment Between Parent and Child," The Kentucky Academy of Science 95th Annual Meeting, Northern Kentucky University, 2009.

**Poster Presentations:**

Fugate, Katelyn; Sizemore, Kayla; Sexton, Paula; and Kidwell, Dr. Shari L. (2010). "Parental Insightfulness and the Effect on Internalizing and Externalizing Behaviors in Children," Celebration of Student Scholarship, Morehead State University, Morehead, Kentucky, April, 2010.

Fugate, Katelyn; Sizemore, Kayla; Sexton, Paula; and Kidwell, Dr. Shari L. (2010). "Parental Insightfulness and the Effect on Internalizing and Externalizing Behaviors in Children," Kentucky Psychological Association, Louisville, Kentucky, March, 2010.

**Awards and/or Honors:**

Psychology Research Award

Inducted into Psi Chi Honor Society in Psychology

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

N/A

**T. ZACH GOBLE**

**Major:**

Psychology

**Faculty Mentor:**

Laurie Couch

**Research/Project Title:**

1. Coping with Lonely Feelings: An Analysis of Self-Identified General Loneliness and Gender
2. I Always Feel Like Somebody's Watching Me: An Analysis of the Imaginary Audience and the Big Five

**Project Abstract/Summary:**

1) Although previous research has outlined healthy/non-healthy and gender-related coping strategies for dealing with general stressors, it remains unclear whether the generally lonely vs. generally non-lonely may cope with their lonely feelings in different ways, or whether gender may interact with this variable. It was hypothesized that those who self-identify as generally lonely would utilize less healthy coping strategies when feeling lonely than those self-identifying as generally non-lonely, that males would report greater usage of unhealthy coping strategies for coping with loneliness than females, and that the two variables would interact. Through survey methods using measures of general loneliness and a common measure of coping strategies (revised to reflect dealing with lonely feelings), data from 256 college student volunteers were subjected to a 2 X 2 (loneliness identification X gender) MANOVA. Results indicated a main effect for loneliness identification, with the self-identified lonely reporting greater use of behavioral disengagement, mental disengagement, and substance use to cope with lonely feelings than the self-identified non-lonely, and non-lonely individuals reporting greater usage of positive reinterpretation and growth, instrumental support, active coping, turning to religion, seeking emotional support, and planning. No main effects for gender or interactions were observed. Therapeutic implications of these results will be discussed.

2) Previous research has suggested that individuals experience adolescent egocentrism or feelings of public self-consciousness through early adulthood (Elkind & Bowen, 1979; Kelly et al 2002); however little is known about whether or not certain personality traits can make a person more susceptible to such imaginary audience feelings. Thus, it was hypothesized that varying degrees of imaginary audience feelings would be linked differentially to personality traits (i.e., the Big Five). Results from our study suggested that individuals who are high in neuroticism, and low in openness and extroversion are more likely to show feelings of public self-consciousness. Therapeutic implications of these results will be discussed.

**Project Dissemination:**

**Poster Presentations:**

- T. Zach Goble, "Coping with Lonely Feelings: An Analysis of Self-Identified General Loneliness and Gender," Society of Southeastern Social Psychologists, Ft. Myers, FL, November, 2009.
- T. Zach Goble, "Coping with Lonely Feelings: An Analysis of Self-Identified General Loneliness and Gender," Society of Southeastern Psychology Association (SEPA) Conference, Chattanooga, TN, March, 2009.
- T. Zach Goble, "The Imaginary Audience," Kentucky Psychological Association Conference, March, 2010.
- T. Zach Goble, "The Imaginary Audience," Southeastern Psychology Association (SEPA), Chattanooga, TN, March, 2009.
- T. Zach Goble, "I Always Feel like Somebody's Watching Me: An Assessment of the Big Five and the Imaginary Audience," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

Outstanding Undergraduate Student in Psychology  
Departmental Psychology Award Recipient

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

Accepted to the School Psychology PhD programs at both the University of Kentucky and Indiana University. Has chosen to attend the program at UK and work under the guidance of Dr. Lisa Ruble.

**KELLY GRUBER**

**Major:**

Psychology

**Faculty Mentor:**

Sean Reilley

**Research/Project Title:**

Impact of Differing Sources of Publically Available Information on Successful Malingering on the Clinical Assessment of Attention – Adult Version

**Project Abstract/Summary:**

The fellowship project resulted in collection of empirical data to begin to address the susceptibility of the Clinical Assessment of Attention Deficit - Adult (CAT) to malingering when credible, free AD/HD information was studied in a lab-based experiment. The CAT-A is one of the few self-report screening tests for AD/HD which includes validity scales to evaluate for response distortion. As a result, this inventory has potential to be superior to other existing self-report scales which have been shown to be sizably influenced by malingering by previous fellowship work. by fellowship recipients have shown self-report scales without validity indicators are highly prone to malingering. Ms. Gruber's fellowship led to a novel experimental approach to evaluate the impact of malingering on the CAT-A in which participants had their AD/HD knowledge evaluated prior to and following their review of diagnostic AD/HD information, and then were asked to feign AD/HD or respond honestly to the CAT-A and comparison self-report measures. Ms. Gruber's research demonstrated that in contrast to other self-report AD/HD measures that were malingered successfully at a high rate (> 90%), the CAT-A detected nearly 2/3 of malingers successfully. Subsequent analyses also were able to identify patterns of successful and unsuccessful malingering strategies on the CAT-A and other self-report instruments so as to better understand the processes involving in malingering on these instruments. Ms. Gruber was responsible for directly contributing to data collection and analysis of a total 100 participants for the 2009-2010 academic year. Appropriate with her level of training, Ms. Gruber learned how to design and implement an experimentally based study and to administer common psychological measures, including the CAT-A, under the supervision of Dr. Reilley, a Licensed Psychologist in the State of Kentucky. These skills enhanced Ms. Gruber's familiarity with basic research skills and some of those common to clinical work. In addition, Ms. Gruber learned advanced data management and analysis skills using SPSS, a major research package used in academic research settings. Ms. Gruber was involved in all aspects of project development, pilot work, data collection, data entry, data analysis, and presentation of results at multiple, state (Kentucky Academy of Science and Kentucky Psychological Association) and national (Association for Psychological Science) professional conferences. Ms. Gruber received a research and an academic excellence award from the Department of Psychology for her research efforts.

**Project Dissemination:****Published Abstract:**

Gruber, K. D., Weyh, N., & Reilley, S. P. (In Press). "Preliminary Evaluation of the Detection of Malingered Childhood AD/HD Symptoms in Adults on the CAT-A," Journal of the Kentucky Academy of Science.

**Poster Presentations:**

Reilley, S. P., Gruber, K.L., & Jackson, M. (2010, May). "Malingered Adult AD/HD is Attenuated Using Validity Indicators on Popular Rating Scales," Annual meeting of the Association for Psychological Science, Boston, MA.

Gruber, K.D., & Reilley, S.P. (2010, March). "Analysis of Successful and Unsuccessful Malingering Strategies on the CAT-A," Annual meeting of the Kentucky Psychological Association, Louisville, KY.

**Oral Presentation:**

Jackson, M.W., Gruber, K. L., & Reilley, S.P. (2010, February). "The Impact of AD/HD Validity Scales on Malingered Childhood AD/HD Symptoms on the CAT-A," Annual meeting of the Mid South Psychology Conference, Memphis, TN.

Gruber, K.D., Wehy, N., & Reilley, S.P. (2009, November). "Preliminary Evaluation of the Detection of Malingered Childhood AD/HD Symptoms in Adults on the CAT-A," Annual meeting of the Kentucky Academy of Science, Lexington, KY.

**Awards and/or Honors:**

Awarded 2009-2010 Outstanding Psychology Scholar Academic Excellence and Research Excellence Awards by the Department of Psychology.

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

N/A

**SYDNEY HOWARD****Major:**

Psychology

**Faculty Mentor:**

Laurie Couch

**Research/Project Title:**

Sugar and Spice and Everything Nice?

**Project Abstract/Summary:**

The present study assessed whether a females' sex roles are related to their experiences in relationships, such as commitment, relational satisfaction, jealousy, and trust. Through survey methods, the sex roles of 98 college women were studied and compared to their relational experiences. Results suggested that sex roles were not related to romantic satisfaction or trust for partner, but feminine females reported more commitment than masculine and undifferentiated females, and feminine females reported more jealousy than undifferentiated females.

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

Howard, Sydney and Professor Laurie Couch (2010, February). "Sugar and Spice and Everything Nice?" SEPA (South Eastern Psychological Association), Chattanooga, TN, February, 2010.

Howard, Sydney and Professor Laurie Couch (2010, March). "Sugar and Spice and Everything Nice?" KPA (Kentucky Psychological Association), Louisville, KY, March, 2010.

Howard, Sydney and Professor Laurie Couch (2010, April). "Sugar and Spice and Everything Nice?" Celebration of Student Scholarship, Morehead State University, Morehead, Kentucky, April, 2010.

**Awards and/or Honors:**

Research Excellence Award

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

N/A

**MEDINA JACKSON****Major:**

Psychology

**Faculty Mentor:**

Sean Reilley

**Research/Project Title:**

Impact of Malingering on Sustained Attention Measures of AD/HD

**Project Abstract/Summary:**

The fellowship project resulted in: (1) preliminary empirical data collection to begin to address the susceptibility of malingering on childhood and adulthood sustained attention measures common in the evaluation of AD/HD, (2) research design and protocol development of a senior project comparing self-report and behavioral sustained

attention measures used for AD/HD evaluation. Ms. Jackson's fellowship led to empirical data collection using adult AD/HD case studies to examine the impact of malingering on childhood and adult sustained attention measures primarily drawn from the Barkley and Murphy Childhood and Current Symptom Scales and the CAT-A. Ms. Jackson's fellowship work led to a new approach to studying malingering wherein one or multiple case studies were examined and found to be superior in outcome to the existing approach of studying diagnostic criteria. Ms. Jackson's work demonstrated childhood sustained attention problems as well as those in adulthood could be successfully faked on self-report measures after studying a credible case history of AD/HD. To evaluate the comparative impact of malingering on self-report and behavioral measures of AD/HD, Ms. Jackson designed and completed the IRB protocol for a senior project to be completed next year. Preliminary data would suggest the behavioral measure would have significant incremental validity to self-report measures and is likely to be less influenced by malingering. Ms. Jackson was responsible for directly contributing to data collection and analysis of a total 100 participants for the 2009-2010 academic year. In addition, she was responsible for researching, designing, and completing the IRB protocol for a senior project to be completed next year. Appropriate with her level of training, Ms. Jackson learned how to design and implement an experimentally based study and to administer common sustained attention measures under the supervision of Dr. Reilley, a Licensed Psychologist in the State of Kentucky. These skills enhanced Ms. Jackson's familiarity with basic research skills and some of those common to clinical work. In addition, Ms. Jackson learned advanced data management and analysis skills using SPSS, a major research package used in academic research settings. Ms. Jackson was involved in all aspects of project development, pilot work, data collection, data entry, data analysis, and presentation of results at multiple, state (Kentucky Academy of Science and Kentucky Psychological Association), regional (Mid-South Psychology Conference) and national (Association for Psychological Science) professional conferences. Ms. Jackson received a research and an academic excellence award from the Department of Psychology and the Outstanding Junior in Psychology award from the College of Science and Technology for her research efforts.

**Project Dissemination:**

**Published Abstract:**

Jackson, M. and Reilley, S.P. (In Press). "The Ability of the CAT-A to Detect Malingered Current AD/HD Symptoms in Adults With and Without Enhanced AD/HD Knowledge," *Journal of the Kentucky Academy of Science*.

**Oral Presentations:**

Reilley, S.P., Gruber, K.L., and Jackson, M. (2010, May). "Malingered Adult AD/HD is Attenuated Using Validity Indicators on Popular Rating Scales," Annual meeting of the Association for Psychological Science, Boston, MA.

Jackson, M.W., and Reilley, S.P. (2009, November). "The Ability of the CAT-A to Detect Malingered Current AD/HD Symptoms in Adults With and Without Enhanced AD/HD Knowledge," Annual meeting of the Kentucky Academy of Science, Highland Heights, KY.

Ward, T.C., Jackson, M.W., and Reilley, S.P. (2010, February). "The Use of AD/HD Case Studies to Enhance AD/HD Knowledge and Success in Malingering Current AD/HD Symptoms on Popular AD/HD Rating Scales," Annual Meeting of the Mid South Psychology Conference, Memphis, TN.

Jackson, M.W., Gruber, K.L., and Reilley, S.P. (2010, February). "The Impact of AD/HD Validity Scales on Malingered Childhood AD/HD Symptoms on the CAT-A," Annual meeting of the Mid South Psychology Conference, Memphis, TN.

Ward, T.C., Jackson, M.W., and Reilley, S.P. (2009, November). "Impact of Multiple AD/HD Case Studies on Malingering," Annual meeting of the Kentucky Academy of Science, Highland Heights, KY.

**Poster Presentation:**

Jackson, M.W., Ward, T.C., and Reilley, S.P. (2010, March). "Use of AD/HD Validity Scales to Reduce Malingered Childhood AD/HD Symptoms on the CAT-A," Annual meeting of the Kentucky Psychological Association, Louisville, KY.

**Awards and/or Honors:**

Awarded 2009-2010 Outstanding Psychology Scholar Academic Excellence and Research Excellence Awards by the Department of Psychology.

Awarded 2009-2010 Outstanding Junior in Psychology by the College of Science and Technology.

Awarded 3<sup>rd</sup> prize in the competitive research competition for co-authored paper with Tina Ward at the Mid South Psychology Conference.

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

N/A

## **BRITNEY MAYNARD**

**Major:**

Psychology

**Faculty Mentor:**

Shari Kidwell

**Research/Project Title:**

External Correlates of Children's Internal Working Models of Attachment: Process vs. Content in Predicting Children's Adjustment

**Project Abstract/Summary:**

Britney and Dr. Kidwell were to work closely together to develop and implement a ratings of children's behavior and affect during a task in which children tell stories about how available and helpful their attachment figures (i.e. parents) are in times of need. Previous work in Dr. Kidwell's lab and in published research had revealed that the story content is associated with children's self-concept and well-being. However, what has been overlooked is the process in which children tell such stories to their interviewer. Attachment theory (Crittenden, 2004) posits that nonverbal behavior is much less successfully "faked" whereas story content (i.e., verbal behavior) can. If researchers and clinicians do not have such information, they may make errors in classifying children's attachment patterns, leading to poor understanding of children's problems misconceptualizations and/or ineffective treatment. Because Britney gave up her fellowship in November as a result of personal problems she was experiencing, this project was not completed.

**Project Dissemination:**

Britney was to co-present data from our study at the Kentucky Academy of Science's November meeting. However, she had little of her assigned work complete when she withdrew from the project. She was removed as a co-author and the work was presented by one of Dr. Kidwell's graduate students, who had been helping to mentor Britney.

**Awards and/or Honors:**

N/A

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

N/A

## **SHAYLA MILLER**

**Major:**

Psychology

**Faculty Mentor:**

David Butz

**Research/Project Title:**

Improving Interracial Interactions: The Role of Expectations about Interracial Contact

**Project Abstract/Summary:**

Commitment to promoting racial diversity in local environments, such as in schools and the workplace, has increased the likelihood that people of different races will have the opportunity to interact. However, there is evidence that many people find interracial interactions to be tense and stressful experiences, and if given the opportunity, will avoid such interactions. Therefore, it is important to develop a deeper understanding of the factors that encourage positive interracial interactions. The current work experimentally examined the role of positive expectations about interracial contact in improving a range of responses to interracial interactions. Thirty five White/Caucasian participants reported to the laboratory for a study on the influence of "technology on social interactions". They were told that the study is focused on understanding how information presented to others via internet profiles influences responses in social interactions. Participants then had the opportunity to create a basic internet profile and view information included in their "partner's" profile, which specified the race of the partner as Black/African American. Expectations about the partner's response during the upcoming interaction were manipulated by providing participants with positive, negative, or no feedback about their partner through responses during a chat session. Participants reported their emotions and intentions regarding the upcoming interaction, after which they were told that the session had concluded and debriefed. Consistent with prior work, preliminary analyses indicated that participants who received negative feedback reported more negative impressions of their partner and heightened anger about the upcoming interaction relative to the positive and no feedback conditions. However, importantly, participants who received positive feedback about an interracial interaction partner's openness to interracial contact anticipated greater enjoyment and interest in the upcoming interaction than participants in the other conditions. Together, these findings support previous work on the role of negative expectations in antisocial responses to interracial interactions and further illustrate that positive expectations may cultivate positive approaches to interracial interactions.

**Project Dissemination:**

**Poster Presentation:**

Miller, Shayla R., and Butz, David A. (2010, April). "The Effect of Expectations on Responses to Interracial Interactions," Celebration of Student Scholarship, Morehead State University, Morehead, KY, April, 2010.

**Awards and/or Honors:**

N/A

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

N/A

## **KENTUCKY CENTER FOR TRADITIONAL MUSIC**

### **KYLE BURNETT**

**Major:**

Advertising/PR

**Faculty Mentor:**

Jesse Wells

**Research/Project Title:**

The Music of J.D. Crowe in Lexington, KY

**Project Abstract/Summary:**

The project included archiving live recordings dating between 1973 and 1982. The collection includes shows recorded at the Holiday Inn's Red Slipper Lounge in Lexington, Kentucky where J.D. Crowe and his band performed six nights weekly during their early years of assembly. This music played a large part in revolutionizing bluegrass music and creating popular forms of country music today. Through their performances at the Red Slipper Lounge, Crowe and his band were able to find their own unique sound, perfect their style, and influence the future generations of bluegrass and country musicians with timeless style and innovation.

**Project Dissemination:**

Through my research involved with J.D. Crowe and the New South, I was able to build upon my repitior of songs and I learned a great deal about the dynamics used in a band setting. These are tools that I have applied to my own performing abilities and I am now able to access this music to enhance my own skills as a musician.

Included recordings:

Live at McCabes's Guitar Shop, Santa Monica, CA 1975

Live in Gettysburg, Gettysburg, PA 1975

Live in Centerville, Centerville, OH 1975

Live at the Red Slipper, Lexington, KY 1973

Live at the Birchmere, Alexandria, Va 1981

Live in Georgia, Belville, GA 1981

**Awards and/or Honors:**

N/A

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

N/A

### **ADAM ISON**

**Major:**

Biology

**Faculty Mentor:**

Jesse Wells

**Research/Project Title:**

The Willie Ison Radio Program

**Project Abstract/Summary:**

The project was completed as planned. All the audio recordings were transferred to digital media and restored for placement in the Kentucky Center for Traditional Music's archives.

**Project Dissemination:**

Eighteen audio recordings, totaling over 10 actual hours of music and preaching were digitally restored and placed in the Kentucky Center for Traditional Music's archives. Ten songs were compiled for a CD sampling some of the best musical performances on the show.

**Awards and/or Honors:**

N/A

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

N/A

**JOHN RODGERS**

**Major:**

Communications

**Faculty Mentor:**

Jesse Wells

**Research/Project Title:**

Ballads, Blues and Banjo Tunes in Eastern Kentucky

**Project Abstract/Summary:**

My project included collecting one hundred traditional ballads, blues and singing banjo tunes. Also included was several interviews with traditional musicians.

**Project Dissemination:**

A printed reference copy of my research was compiled for use through the Kentucky Music Archives at the Kentucky Center for Traditional Music. A digital copy was also provided.

**Awards and/or Honors:**

N/A

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

N/A

**KRISTEN SMITH**

**Major:**

Elementary Education

**Faculty Mentor:**

Jesse Wells

**Research/Project Title:**

The Piano's Role in Traditional Music

**Project Abstract/Summary:**

I researched traditional music that incorporated the piano. I studied recordings of jugbands, a style that was first developed in Louisville, KY, in the early 20<sup>th</sup> century, as well as traditional musicians, fiddlers and banjo players, that used piano accompaniment.

**Project Dissemination:**

My project included a notebook of music collected, both recordings and written manuscripts. I transcribed melodies and chord charts for these pieces of music. A collection of audio, video, photographs and documents was submitted to the Kentucky Center for Traditional Music for their Kentucky Music Archives.

**Awards and/or Honors:**

N/A

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

N/A