Scholars Week

April 19-23, 2010

Coordinated by
Jody Cofer

Assisted by Thomas Krones, Kathryn Reinhardt, and Camille Newell

9th Annual
Scholars Week
Program and Abstracts

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Welcome

to ***Scholars Week*** 2010. This year marks the ninth anniversary of Murray State University's (MSU) ***Scholars Week*** celebration!

The 2009-10 academic year has been very productive for Murray State students and faculty. MSU undergraduate students joined students from Kentucky's other public institutions of higher education and the Kentucky Community and Technical College System for *Posters-at-the-Capitol*, an event in Frankfort organized by Murray State's Office of Undergraduate Research and Scholarly Activity (URSA). Throughout the year, over thirty undergraduate MSU students have received financial support for faculty-mentored projects through the URSA Grant Program, and three Research Scholar Fellowships were awarded to undergraduate students who participated in a very competitive review process. This year also marks the first time one of the Research Scholar Fellowships was awarded to a student studying in the visual arts.

The sixth edition of *Chrysalis: The Murray State University Journal of Undergraduate Research* features the scholarly endeavors of students throughout the University. This year's *Journal* highlights a diverse offering of scholarship completed by undergraduates in biology, chemistry, economics, history, mathematics and statistics and modern languages. The number of student presentations and publications at professional society gatherings continues to grow benefitting the student participants and representing the strength of our academic opportunities. For those who have participated in these experiences, you know that you have been enriched from doing so and will be more competitive in graduate study and your career.

As the 2009-10 academic year culminates, the University is looking forward to the annual ***Scholars Week*** celebration which recognizes the creative and scholarly work of hundreds of Murray State undergraduate and graduate students. I encourage you to attend as many of this year's ***Scholars Week*** poster sessions, oral presentation sessions, performances, and exhibits as possible. I am grateful to you – our students, faculty, and staff – for making this another outstanding year for scholarly accomplishments at Murray State University.

Dr. Randy J. Dunn
President
Murray State University

Welcome to the 9th anniversary of ***Scholars Week*** at Murray State University. ***Scholars Week*** has become a very important event at Murray State University for our students and faculty. This is truly a university-wide celebration of undergraduate and graduate research, scholarship, and creative activity.

I applaud the efforts of our Office of Undergraduate Research and Scholarly Activities (URSA) for implementing this program nine years ago and then working with students and faculty to achieve greater and greater participation each year. During this week, students have the opportunity to showcase their scholarship efforts through oral presentations, poster sessions, exhibits, and performances.

I believe research, scholarship, and teaching go hand-in-hand to provide one of the very best learning environments for students. We know from current research in learning theory that students learn and retain knowledge better when they are fully engaged in the process. Through the efforts of our dedicated faculty, Murray State University is developing into one of Kentucky's institutions of choice for students who want to engage in the process of discovery and do significant research and creative work as undergraduates.

I encourage all of you to take advantage of the activities of this week and enjoy!

Dr. Gary R. Brockway
Provost and Vice President for Academic Affairs
Murray State University

There are no guarantees in life; we all have heard that. It's difficult to guarantee anything, especially a college / university's performance with regard to student learning, but there are some parameters: In the world of accountability in which we all live, critical components of student learning are obvious in courses completed, grades achieved, and ultimately graduation; however, another equally critical component of student learning is in research and scholarship during the undergraduate years. "Traditionally, undergraduate education has taken place in the classroom, while research has been for graduate students and faculty. No more. College and universities are pushing hard to get many more undergraduates involved in research" (Justin Pope, Associated Press, USA Today, Feb. 5, 2007). This article goes on…,"Nationally, there is nothing hotter than undergraduate research," says George Barthalmus, NC State's director of undergraduate research.

As an NC State alumnus, I echo Dr. Barthalmus' comments, and I am very proud, as a Murray State University faculty member and administrator to share with you that your education here, with tremendous faculty/staff interaction, has been exponentially "ramped up" with regard to undergraduate research under the leadership of the Office of Undergraduate Research and Scholarly Activity. You should be proud of your engagement in scholarship and research during our annual ***Scholar's Week***, working hand-in-hand with professors across all of our colleges, departments, and disciplines. I am very proud to welcome you to this cutting edge event where Murray State University is an equal peer to some of the best research universities in the nation.

There are no guarantees in life, and student learning is difficult to measure; however, your participation in Murray State University's ***Scholar's Week*** is evidence of your success here as a student as well as your success in the not-too-distant-future as a graduate. Don't forget your beginnings, and always remember your alma matre, Murray State University.

Dr. Tim Todd
Dean, College of Business and Public Affairs

Scholars Week is a rewarding and exciting event for the College of Education and Murray State University. During the year we celebrate student contributions and achievements in many domains but during ***Scholars Week*** the academic work and achievement is displayed by our most accomplished students. The display of academic work and achievement reflects our institution and gives our community and citizens of the Commonwealth insight to the true meaning of our institution.

Students from each college within the university have prepared exhibits and presentations that reflect their academic endeavors. I encourage you to visit all of the displays and personally congratulate the scholars for their outstanding work and achievement.

As Dean of the College of Education, I welcome you to ***Scholars Week*** and trust you will be impressed with the displays and the hospitality and friendliness of our students, faculty, college and university.

Dr. Russ Wall
Dean, College of Education

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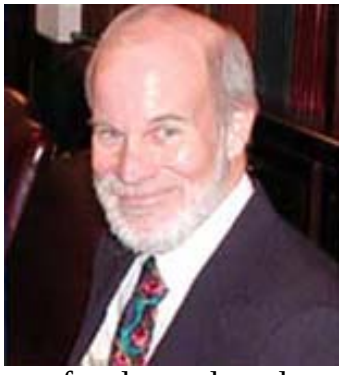

Murray State University's ***Scholars Week*** provides an exciting opportunity to recognize and celebrate the academic achievements of our undergraduate and graduate students, showcasing the results of their scholarly and creative projects. Research, fundamental and applied, is an essential component of our curricula. Throughout history, major discoveries and new knowledge have been essential to human progress. Through active research agendas and creative endeavors, our faculty and students explore the boundaries of their disciplines and expand our realm of possibilities. Discovery though research and creative activity encourages a sense of relevance and excitement as new knowledge is applied to society, industry, and beyond. The faculty in the College of Humanities and Fine Arts work together with their students on research and creative projects in classrooms, clinics, and studios, becoming partners in the exploration of disciplines and the acquisition of new knowledge. This partnership expands the abilities of our students to think independently, creatively, and critically. As one of the leading universities in the region, this is our ultimate mission.

Dr. Ted Brown
Dean, College of Humanities and Fine Arts
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On behalf of the College of Health Sciences and Human Services, welcome to ***Scholars Week***! The college journey is a unique time in life where new beginnings for learning and life experiences take place. ***Scholars Week*** is an amazing opportunity for learning and scholarship potential. Please join us in celebrating accomplishments of the many talented individuals at Murray State University. This event showcases undergraduate and graduate students' exhibits in intellectual and creative roles within their fields of expertise. Remember, whatever you choose in life, "Go confidently in the direction of your dreams. Live the life you've imagined" (Henry David Thoreau).

Dr. James "Corky" Broughton
Dean, College of Health Sciences and Human Services

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MSU's ***Scholars Week*** is a time for us to celebrate the research, scholarship, and creative accomplishments of our students. During this week, we have the opportunity to recognize and affirm those students who have demonstrated their commitment to their disciplines by pursuing learning beyond the confines of the classroom. In addition, we honor those faculty who have invested their time, talents, and resources to involve students in a richer learning experience. The posters and exhibits presented this week are evidence of MSU's dedication to creating a student-centered learning environment where students are encouraged to pursue excellence in their creative and academic achievement. The College of Science, Engineering, and Technology is happy to support ***Scholars Week***, and congratulates all who participate.

Dr. Steve Cobb
Dean, College of Science, Engineering, and Technology
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On behalf of the School of Agriculture, I would like to welcome you to this unique opportunity to celebrate research, scholarly, and creative activity. It is also a time to showcase our dedicated faculty who are devoted to the personal and professional growth of our students. Life is a journey with many avenues. As you participate in this event, you will view the numerous ways the University is committed to academic excellence as well as providing the opportunity to explore these avenues. Through activities like ***Scholars Week***, Murray State University and the Murray State University School of Agriculture offers its students the opportunity to get an education instead of just a degree. I would like to commend all the participants in this event.

Dr. Tony Brannon
Dean, School of Agriculture

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While the accomplishments of our students is a constant point of pride to Murray State University, ***Scholars Week*** stands out as it gives us an opportunity to highlight the amazing research and creative activity performed by some of our best and brightest students. Much like the faculty who work with these students firsthand, those of us here in the University Libraries have the good fortune to participate in the learning and growth that accompanies these student endeavors. The excellent displays you will see during ***Scholars Week*** are the visible result of that learning, and help demonstrate the value Murray State University places on teaching, research and service excellence.

On behalf of the faculty and staff of the University Libraries, welcome!

Mr. Adam Murray
Dean, University Libraries
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A Welcome from the Undergraduate Research and Scholarly Activity Advisory Board and Staff

On behalf of the Undergraduate Research and Scholarly Activity Advisory Board and staff, welcome to our ninth annual ***Scholars Week*** celebration. We are pleased that over the past eight years that several thousand Murray State University undergraduates and graduate students have had the opportunity to present their research, scholarly, and creative works to the university community.

The work displayed in this year's ***Scholars Week*** abstract booklet represents thousands of hours of effort on behalf of Murray State's students and faculty. To our students, you are to be commended for your dedication and effort! Your efforts will be rewarded when you apply to graduate school or when you look for that first job. To the faculty, you are helping our students succeed and this is among our greatest rewards.

Please join the URSA Advisory Board and staff in celebrating the accomplishments of our students by attending as many of the ***Scholars Week*** events as possible. Our young scholars need your continued support!

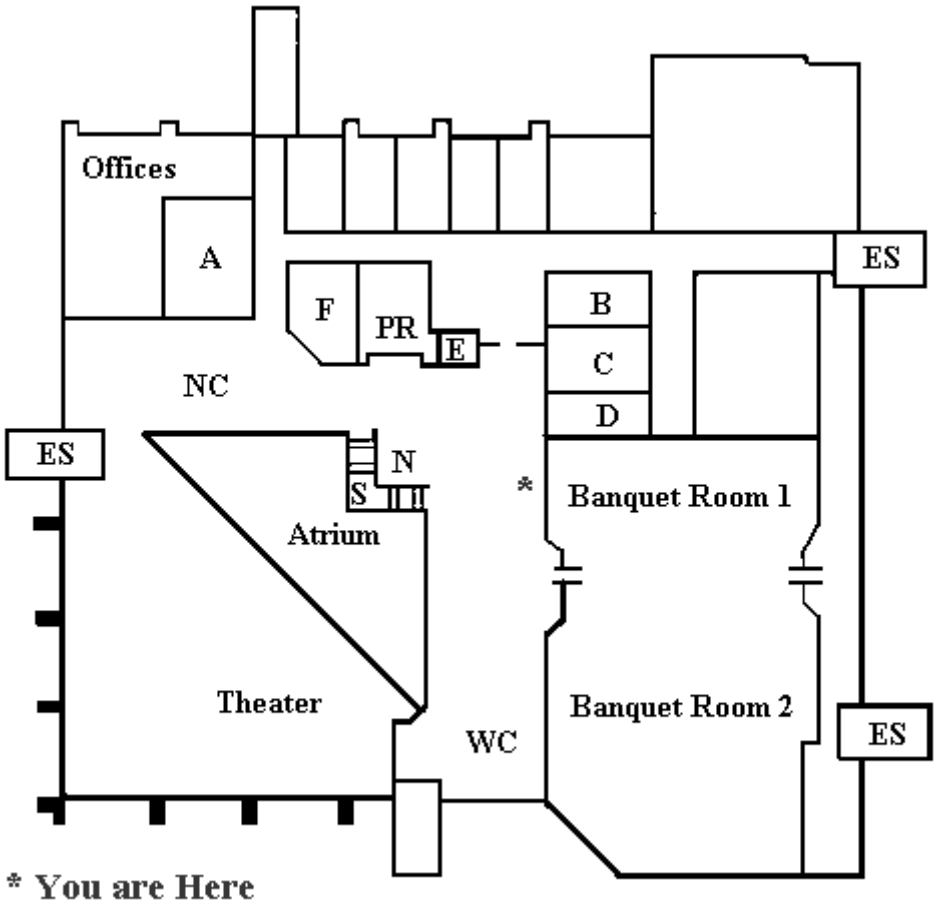
Advisory Board and Staff:

Dr. Terry Derting Biological Science	**Dr. Tracey Wortham** Occupational Safety and Health	**Dr. Zbynek Smetana** Art
Dr. Meagan Musselman Education	**Dr. Joyce Shatzer** Education	**Dr. Paula Waddill** Psychology
Dr. Terry Holmes Business Administration	**Dr. David Eaton** Economics and Finance	**Dr. David Ferguson** Agriculture
Dr. Pat Williams Agriculture	**Dr. Kelly Kleinhans** Communication Disorders	**Dr. Harry Fannin** Chemistry
Ms. Julie Robinson Library	**Dr. John Mateja** URSA	**Mr. Jody Cofer** URSA
Dr. Bonnie Higginson Office of the Provost		

Murray State University

Scholars Week

April 19 - 23, 2010



A – Barkley Room
B – Ohio Room
C – Mississippi Room
D – Cumberland Room
S – Center Stairs
NC – North Concourse
E – Elevator
F – Tennessee Room
N – Crow's Nest
PR – Public Restrooms
ES – Emergency Stairs
WC – West Concourse

Scholars Week Program

Monday, April 19, 2010

Poster Session

Sigma Xi Poster Competition

Small Ballroom, Curris Center
Session Chair: Dr. Daniel Johnson
9:00 a.m. – 12:00 p.m. Poster Set-Up
12:00 p.m. – 4:00 p.m. Poster Judging
* *Undergraduate*
** *Graduate*

Jessica Barker * - Biology
The Effects of Atrazine on the Immune System of Crickets

Dylan Benningfield * - Chemistry
HPLC Method Development for Triclosan Analysis in Environmental Samples

Brittany Carpenter ** - Biology
The Effect of Temperature on Immune System Function in the Caribbean Termite Nasutitermes acajutlae *on St. John, US Virgin Islands*

Brianna Cassidy * - Chemistry
Bisphenol-A in Drinking Water: A Possible Source of Human Exposure

Sarah Hargis * - Nursing
Cell Adhesion Mechanisms of Neural Stem Cells

Renee Levesque * & Sarah Hargis * – Biology
Energy Costs and Trade-Offs of the Adaptive Immune System in Old-Field Mice (Peromyscus polionotus)

Sudan Loganathan * - Chemistry, Michael Creed **, Christina Jackson *, & Dan Varonin * - Biology
Studying Germline Stem Cells Using the Fruit Fly as a Model System

Megan Rhodes * – Chemistry
Bisphenol-A Concentrations in Sewage Sludge Samples from a Small Urban Wastewater Treatment Plant

Chris Robards * – Architectural Engineering Technology and Tin Nguyen * – Civil Engineering Technology
Three Dimensional Modeling of Oil Fields from the Illinois Basin

Stefan Schnake * – Mathematics
Periodic Points of Differential Operators

Meredith Stevenson * – Applied Mathematics
Using Percentage Change as the Universe of Discourse in Fuzzy Time Analysis

Sarah Thomason * – Wildlife/Conservation Biology
An Evaluation of Microsatellites in Ambystoma tigrinum nebulosum

Oral Sessions

Communications Session

Tennessee Room, Curris Center
Session Chair: Dr. John Spinda
11:30 a.m. – 12:15 p.m.

Caitlin Long – Communication Disorders
Speech Language Pathologists: Meeting the Communication Needs of a Linguistically Diverse Society

Robin Phelps – Organizational Communication & Journalism & Mass Communication
Facebook Goes to Work: Comparing Supervisors' and Subordinates' Perceptions of Facebook Use

Jessica Weatherford – Organizational Communication
Adapting to Chinese Culture and Communication Training Manual

Economics Session I

Ohio Room, Curris Center
Session Chair: Dr. David Eaton
12:30 p.m. – 3:00 p.m.

Lauren Allard – Economics
Evaluating Public Policy Towards the Obesity Epidemic

Maggie Browning – Economics
The Impact of Marital Status on Economic Well-Being for Individuals and Families

Lucas Tanner-Gray – Economics
The Economist's Sandbox: Economic Research in MMORPGs

Jeremy Long – Economics
Organic vs. Inorganic Food Production

Caroline Orr – Economics
The Effects of a Ban on Horse Slaughter

How Old Will You Be in 2050?: Why Youth Need to be at the Forefront of the Climate Movement

Barkley Room, Curris Center
Session Chair: Ms. Rebecca Feldhaus
12:30 p.m. – 1:20 p.m.

Panel Discussion by
Sarah Kelty, Shraddha Chakraddhar, and Dr. Bob Long

Attendees are welcome to bring lunch to this session.

Psychology Session

Tennessee Room, Curris Center
Session Chair: Dr. Paula Waddill
1:30 p.m. – 2:45 p.m.
(listed in order of presentation)

Meg Stone – Psychology & Sociology
Graduate School Gender Conflict

David Adams – Psychology
Temporal Discounting of Necessities and Luxuries

Lori Craven – Psychology
Sport Fandom and Personality, 2010

Kassandra Johnson – Liberal Arts
The Correlation Between Depression and Self-Monitoring

Brad Wooten – Psychology
Government Medical Care Space

Criminal Justice Session

Tennessee Room, Curris Center
Session Chair: Dr. Paul Lucko
3:15 p.m. – 4:30 p.m.

Matthew Jones – Criminal Justice
Dog Eat Dog: The Organized Crime of Dog Fighting

Christian Simon – Criminal Justice
Traffic in Illegal Weapons: Myths and Realities

Thomas Simpson – Criminal Justice
Biker Gangs in Western Kentucky: Organized Crime or an Organization of Criminals or Just Riders?

Angie Wheaton - Criminal Justice
Bible Belt or Death Belt: Religion and Race as Predictors of the Death Penalty in the United States

BioMaps Mini-Symposium

Barkley Room, Curris Center
Session Chair: Dr. Renee Fister
3:30 p.m. – 5:00 p.m.
(listed in order of presentation)

Glenna Buford – Applied Mathematics
Impact of Agriculture on Amphibian Diversity in Western Kentucky and Tennessee

Renee Levesque & Sarah Hargis – Biology
Energy Costs and Trade-Offs of the Adaptive Immune System in Old-Field Mice (Peromyscus polionotus)

Sarah Thomason – Wildlife/Conservation Biology
An Evaluation of Microsatellites in Ambystoma tigrinum nebulosum

Joshua Hyatt – Mathematics
Application of the Poset of Irreducibles

Tuesday, April 20, 2010

Oral Sessions

Education and Humanities Session

Ohio Room, Curris Center
Session Chair: Dr. Barbara Cobb
9:30 a.m. – 10:45 a.m.

Miranda Brown – Spanish
Uniting the Colonized: International Solidarity as a Strategy for Achieving Environmental Justice

Jennifer Crocker – English
Milton, Sin and the Feminization of Evil by the Roman Catholic Church

Jennie Dickerson – Spanish
The Oppression of Women in Mexico As Seen in Hasta No Verte Jes s M o

Gina Gordon – English Literature
William Shakespeare's Defense of Women

Kristen Tinch – Secondary English Education
Trends in Graphic Novel Use Across Kentucky's High Schools

Economics Session II

Ohio Room, Curris Center
Session Chair: Dr. David Eaton
12:30 p.m. – 3:00 p.m.

Daniel Duncan – Economics
A "Fat Tax" and the Economics of Obesity

Dustin Haneline – Economics
Tenncare Implications on Hospitals

Justin Ray – Economics
Economic Impact of CARS

Modern Language Senior Colloquium

Mississippi Room, Curris Center
Session Chair: Dr. Reika Ebert
1:30 p.m. – 5:00 p.m.
(listed in alphabetical order)

Sarah Brock – Spanish
The Works of Frida Kahlo Through the Elements of Art

Breanna Copeland – Spanish
Oppression in Argentina

Caitlyn Droste – Spanish
Defining Magical Realism

Kevin Garrett – Spanish
The Use of Metaphors in the Burlesque and Satirical Poems of Golden Age Spanish Poets

Ludmila Gorodetska – Spanish
The Archetype of La Llorona

N. Monica Jameson – Spanish
Is Mexico a Culture that Overshadows Women?

Lyndsi Leith – French
Contempt: A Comparison of the Life and Art of Jean-Luc Godard

Doug Phelps – German
Reigen to La Ronde: The Evolution of Sexual Culture in European and American Theatre

Hannah Shaffer – Spanish with Teaching Certification
El otro lado del ecoturismo

Lacey Sparks – French and History
George Sand: 21st Century Feminist in the 19th Century

Casey Thornton – German
Comparison of Goethe's Faust and Oscar Wilde's Picture of Dorian Gray

Kimberly Turner – Spanish Education
La voz de Centroam rica

Francis Whitfill – German & Spanish
Justifying What Cannot Be Justified: A Look at Colonial Justification Mechanisms

Ashley Winkler – Spanish & Chemistry
Lorca's Literary Use of Symbolism in Yerma

Women in STEM Session

Ohio Room, Curris Center
Session Chair: Dr. Ted Porter
3:30 p.m. – 4:45 p.m.

Jennifer Berger – Agriculture
Cultivation Impacts on Selected Soil Properties of Vicksburg Series

Glenna Buford – Applied Mathematics
Impact of Agriculture on Amphibian Diversity in Western Kentucky and Tennessee

Brianna Cassidy – Chemistry
Bisphenol-A in Drinking Water

Rebekah Clay – Biology
Academic Stress and Blood Pressure

Dianna Johnson –
Agriculture/Environmental Soil Science
Impact of Mulch Sources on Selected Soil Properties during Habitat Restoration

Lauren Schmidt – Mathematics & Computer Science & Kendra Schroeder – Computer Science (Northern Ohio University)
Knowledge-Poor Pronominal Resolution

Meredith Stevenson – Applied Mathematics
Using Percentage Change as the Universe of Discourse in Fuzzy Time Analysis

Other Sessions

Resume Review Session
Crows Nest, Curris Center
Session Chair: Ms. Rebecca Feldhaus
9:00 a.m. – 12:00 p.m.

Visit with faculty to go over resumes on a one-on-one basis.
9:00 a.m. - Drs. Terry Derting & ZB Smetana
10:00 a.m. - Drs. ZB Smetana & Tracy Wortham
11:00 a.m. – Dr. Bob Long

Phi Kappa Phi Luncheon
Large Ballroom, Curris Center
Contact: Dr. Judy Ratliff
12:00 p.m. – 1:00 p.m.
(Invitation Only)

Awards Recognition Reception Faculty Club
4:00 p.m. – 5:30 p.m.
(Faculty & Staff Only)

Dr. James Davis, Professor of Animal and Equine Science, 2010 Recipient of the University Distinguished Mentor Award

Dr. Scott Locke, Associate Professor of Music, 2010 Recipient of a CISR Presidential Research Fellowship

Dr. Bommanna Loganathan, Associate Professor of Chemistry, 2010 Recipient of a CISR Presidential Research Fellowship

The 2010 recipient of the Alumni Association's Emerging Scholar Award will also be honored.

Sigma Xi Banquet
Large Ballroom, Curris Center
Contact: Dr. Daniel Johnson
6:30 p.m. – 8:30 p.m.
(For Sigma Xi Members, Competition Participants, and Invited Guests)

Performance

New Music at MSU Recital
Performing Arts Hall, Fine Arts Annex
7:30 p.m.

Student Composers:
Kyle Dixon
Matthew Hightower
Alan Manning
Becca Thompson
Susan Rice

Wednesday, April 21, 2010

Poster Session

General Poster Session

Small Ballroom, Curris Center
9:00 a.m. – 11:30 a.m.
Students will be with their posters from 10:30 a.m. to 11:30 a.m.
*** Sigma Xi Poster Competition Participant*
**** American Humanics or Service Learning Posters*

Lauren Allard – Economics
Evaluating Public Policy Towards the Obesity Epidemic

Leslie Allen, Kathy Quatro, & Tiffany Nalley – RN BSN Nursing
A Healthy Start with Peer Support

Erin Atha, Leah Reising, Jennifer Weber *** – Youth and Nonprofit Leadership
Big Brothers Big Sisters Toy Drive

Jessica Barker ** - Biology
The Effects of Atrazine on the Immune System of Crickets

Laura Barrow, LaMora Garcia, & Jessica Altman – RN BSN Nursing
Fall Prevention Education Among Nursing Home Residents

Tracy Woods-Beck – RN BSN Nursing
Applying Accreditation of Echocardiographic Department Through ICAEL

Dylan Benningfield ** - Chemistry
HPLC Method Development for Triclosan Analysis in Environmental Samples

Emily Blue, Lauren Wheatley, Jeremy Teague *** – Youth and Nonprofit Leadership
Masters of Disaster

Alice Bradshaw – Nutrition
Development and Acceptability of a Low Sugar Granola Bar

Cathy Bethel – Nursing
Improving Medical/Surgical Nursing Compliance with Heart Failure Core Measures

Jennifer Blasdel, Tamara Hughes, & Angela Johnson – RN BSN Nursing
How Well Do You Speak SBAR?

Lauren Buch *** - Recreation and Leisure Services
Service Learning Through Murray Calloway County Park and Recreation

Holly Buchanan & Elizabeth Rouse – Dietetics
Acceptability of Pureed Beets as a Partial Fat Substitute in Red Velvet Cupcakes

Gloria Capps, James Davis, & Marilyn Roberts – RN BSN Nursing
Creation and Implementation of a Standardized Charge-Report Tool for CCU Clinical Leaders

Brittany Carpenter ** - Biology
The Effect of Temperature on Immune System Function in the Caribbean Termite Nasutitermes acajutlae *on St. John, US Virgin Islands*

Amanda Carrico, Jody Cofer, Hannah Durbin *** – Youth and Nonprofit Leadership
Great Start!

Brianna Cassidy ** - Chemistry
Bisphenol-A in Drinking Water: A Possible Source of Human Exposure

Timothy Chandler & Darrell New – Nursing
Streamlining the Admissions Process by Incorporating a One Call Transfer Center at Lourdes Hospital

Beth Crowe, Katie Donahue, & Rebekah Stanek *** – Youth and Nonprofit Leadership
Bridging the Gap

Mary Crowe – Psychology
Familiarity and Mnemonics: Effect on Location and City Name Recall

Karon Curtis & Mary Inman – Nursing
Proper Use of External Defibrillators Necessary in Survival Rate of Patients in a Code Situation

Jennie Dickerson, Jameson Hill, & Lucy Love *** – Youth and Nonprofit Leadership
Campus-wide Freeze Out

Caitlyn Drostle & Linsey Ivey – Dietetics
The Acceptability of Skim Milk, Soy Milk, Rice Milk, and Almond Milk as Substitutes for Whole Milk in Plain Muffins

A. Nicole Edison *** – Criminal Justice
Service Learning at Wranglers Campground

Kim Emberton – Nursing
Positive Effects of a Home Like Environment in Long Term Care

David Farrell – Wildlife Biology & Tom Anderson – Water Science
Population Dynamics of Ambystoma maculatum *(spotted salamander) and* A. talpoideum *(mole salamander) at a Breeding Site in Calloway County, KY*

Andre Foster & Jessica Carr *** – Youth and Nonprofit Leadership
Knick Knack Backpack

Kandi Good – RN BSN Nursing
JSMC: The Road to Latex Freedom

Nick Hall & Sydney Gholston – Nutrition
Differentiation Between the Levels of Sweetness in Bananas Using Different Stages of Ripeness Through Oxidation in Banana Bread

Sarah Hargis ** - Nursing
Cell Adhesion Mechanisms of Neural Stem Cells

Hillary Harris – Nutrition/Dietetics & Jodi Rickert – Nutrition Food Management
The Acceptability of Sunflower Seed Butter as a Substitute for Peanut Butter on Sandwiches and in Cookies

Robin Holland – Pre-Veterinary Medicine
Pedigree Analysis to Determine the Mode of Inheritance of White Markings in the Norwegian Fjord Horse

Melvin Ingram, Ronald Sickles, & Alex Walton *** – Youth and Nonprofit Leadership
Let's Get R.E.A.L. (Reading Enhances Academic Lifestyles)

Angela Johnson, Tamara Hughes, & Jennifer Blasdel – RN BSN Nursing
S-Situation, B-Background, A-Assessment, R-Recommendation (SBAR) Communication

Autumn Johnson & Chastity Johnson – RN BSN Nursing
Admission Checklist Tool to Improve Nursing Documentation and Obtainment of Orders for Continuum of Patient Care on Transitional Care Unit

Steven Kinnard *** – Youth and Nonprofit Leadership
All Saints Welcome Open House

Shelley Laneve, Samantha Grau, & Donna White – RN BSN Nursing
Nursing Home Health Assessments Lead to Early Intervention and Enhanced Care

Renee Levesque & Sarah Hargis ** – Biology
Energy Costs and Trade-Offs of the Adaptive Immune System in Old-Field Mice (Peromyscus polionotus)

Jessica Lindsey, Katie Locke, & Kristen Smith*** – Youth and Nonprofit Leadership
Wii Workshop

Sudan Loganathan ** - Chemistry, Michael Creed, Christina Jackson, & Dan Varonin - Biology
Studying Germline Stem Cells Using the Fruit Fly as a Model System

Jeongsun Moon – Nutrition/Dietetics/Food Management
The Acceptability of Tofu as Meat Substitute in Spaghetti Sauce with Meatballs

Asenath Na'Aman & Chenin Treftz – Dietetics
The Development and Evaluation of a Healthful Doughnut Alternative

Heather Nash & Lindsay Hopkins– Nutrition
Dates as a Sugar Substitute in a Cookie

Mary New, Robin Pierce, & Lisa Chandler – RN BSN Nursing
Computerized Training Module Increases Nursing Productivity and Confidence

Nicole Newton – Physics
Solving the Charioteer's Mystery

Abby Noisworthy – RN BSN Nursing
Transforming Care at the Bedside: Hand Off Communication in Nursing

Bradley Oliver – Chemistry
Preparation of Oligomers for Use in Organic Photovoltaics

Linda Overholser & Carolyn Wagoner – RN BSN Nursing
Prevention of Skin Breakdown

Justin Parrish – Agriculture Science, Trent Murdock – Agronomy, & Kyle Overbey – Agribusiness
Evaluation of Dark Fire-Cured and Dark Air-Cured tobacco Varieties

Amanda Paschall & Lauren Bethel – Consumer Nutrition
Sensory Effects of Varying Amounts of Flaxseed on a Homemade Pretzel

Amber Powell & Cathy Simms – RN BSN Nursing
Embracing a Mentoring Culture in the ICU

Megan Rhodes ** – Chemistry
Bisphenol-A Concentrations in Sewage Sludge Samples from a Small Urban Wastewater Treatment Plant

Chris Robards ** – Architectural Engineering Technology and Tin Nguyen ** – Civil Engineering Technology
Three Dimensional Modeling of Oil Fields from the Illinois Basin

Ginger Schmidt, Katie Bogard, & Verna Shanstrom*** – Youth and Nonprofit Leadership
Great American Smoke Out

Lauren Schmidt – Mathematics & Computer Science & Brooke Phillips – Applied Mathematics
The Mathematics of Indian Drums
Stefan Schnake ** – Mathematics
Periodic Points of Differential Operators

Joshua Scott – Agriculture/Agronomy & Scottie Coleman – Agriculture/Agri-business
A Comparison of Safety and Effectiveness of Two Insecticides for Dark Tobacco

Joshua Scott – Agriculture/Agronomy
Continued Studies of Past Broiler Litter Applications on Soybeans

Monica Seibel – Nutrition, Dietetics, & Food Management
Acceptability of Ice Cream Made with Various Lactose Free Milks

Kristen Simmonds – Nutrition – Dietetics
The Use of Pureed Carrots as a Fat Replacer in Cream Soup

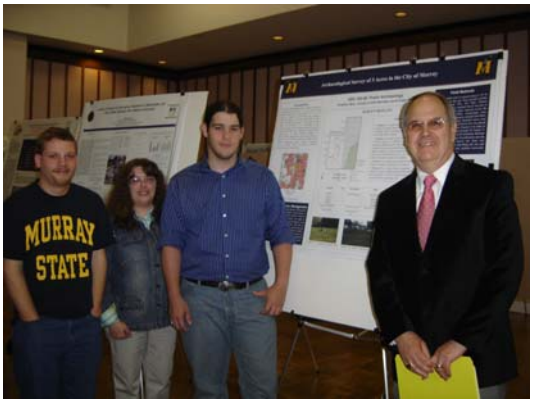
Meredith Stevenson ** – Applied Mathematics
Using Percentage Change as the Universe of Discourse in Fuzzy Time Analysis
Robert Stuard – Agriscience & Technology, Josh Miller – Agriscience, & Wes Steele - Agronomy
The Impact of Various Nitrogen Rates on Dark-Fired & Burley Tobacco

Leslie Taylor – Dietetics
Gluten Free Oatmeal Raisin Cookies

Nathan Thacker – Nutrition – Dietetics
The Use of Beans as a Meat Replacement in Spaghetti Sauce

Gary Thomas, Stanley Revlett, & Kayla Crowdus – Nursing
Development and Implementation of a Post Cardiac Arrest Induced Therapeutic Hypothermia Policy and Procedure

Sarah Thomason** – Wildlife/Conservation Biology
An Evaluation of Microsatellites in Ambystoma tigrinum nebulosum



President's *Scholars Week* Luncheon

Large Ballroom, Curris Center
Moderator: Provost Dr. Gary Brockway
11:30 a.m. – 1:00 p.m.

Remarks:

President Dr. Randy J. Dunn

Presentation:

Stacey Reason,
Research Scholar Fellow

Process Impact: A National Exhibition of Activist Art

Recognition of:

1. MSU Alumni Association's Distinguished Researcher Award Recipient
2. MSU Alumni Association's Emerging Scholar Award Recipient
3. MSU Distinguished Mentor Award Recipient
4. MSU Service Learning Mentor of the Year

MSU Alumni Association Distinguished Researcher Award Colloquium

Theater, Curris Center
Session Chair: Dr. Duane Bolin
1:30 p.m. – 2:30 p.m.

Ms. Nicole Hand, Associate Professor in the College of Humanities and Fine Arts and 2009 Distinguished Researcher Recipient

Utilizing Multiples Through Intaglio and Bookbinding

Oral Sessions

Occupational Safety and Health Session

Mississippi Room, Curris Center
Session Chair: Dr. Tracey Wortham
9:30 a.m. – 10:30 a.m.

Brandon Hester, Annett Fowler, & Mark Johnson – Occupational Safety & Health
An Ergonomic Analysis of a Tire Manual Material Handling Operation for Potential Musculoskeletal Problems and Solutions

Robert Hobson, Jayme Kahne, & Matt Black – Occupational Safety & Health
Ergonomic Risk Factors Associated with Hospital Custodians

Jayme Kahne, Ryan Rhleder, Ashley Henderson, & Nawal Zakari – Occupational Safety & Health
GEM Electronic Vehicle Noise Study

Joe Tarry, Ryan Curry, & Jenna Lake – Occupational Safety & Health
Parking Lot Light Survey

College of Education: Student Teacher Eligibility Portfolios

Crows Nest, Curris Center
Session Chair: Ms. Jeanie Robertson
9:30 a.m. – 1:30 p.m.

Kaitlin Baetzel – Elementary Education

Katie Herrenbruck – Biology

Megan Richter – Music Education

Lindsey Rogers – Elementary Education

Kelly Rottman – Spanish Education
Whitney York – Business & Marketing

Christopher Watson – Music Education

Joshua Woehlke – English

Jane Austen Session
Barkley Room, Curris Center
Session Chair: Dr. Kelley Wezner
2:00 p.m. – 4:00 p.m.

Ashlee Cobb – Liberal Arts
Family Dynamics and Their Consequences in the Bennet Family

Jennifer Crocker – English
Fanny Price and Colonial Power Structures

Jaclyn Feezor – English Secondary Education
Austen's Letters Used to Lure Lovers

Becky Lane – English Literature
The Weight of Indiscretion: Fallen Women in the Work of Jane Austen

Tessa Powell – English Literature
The 19th Century Novel and Jane Austen

Amanda Turner – English Education / Secondary Certification
Rewarding Sisters in Austen Novels

Mathematical Biology Session
Mississippi Room, Curris Center
Session Chair: Dr. Maeve McCarthy
3:30 p.m. – 5:30 p.m.
(listed in order of presentation)

Jessica Whitaker – Biology
Epidemiology Compartment Modeling: An Overview

Morgan Geile – Biology
The Application of Midified PageRank TM Algorithm in Order to Predict Coextinctions in the Natural World

Aron Huckaba – Chemistry & Mathematics
Fisher's Fundamental Theorem of Natural Selection: Population Genetics and Chemical Kinetics

Jeremy Long – Economics
Mammalian melanin Modeling Using Reaction-Diffusion Mechanism

James Ravellette – Biology
Applied Mathematics and Phylogenetic Tree Construction: The Fitch-Margoliash Algorithm

Callie Wilson – Biology
Crick, Griffith, and Orgel's Comma-Free Genetic Code: A Step Towards Unlocking the Genetic Code

Samantha Erwin – Mathematics
The Mathematical Process of Computer Assisted Tomography

Thursday, April 22, 2010

Oral Sessions

Conservation Biology Service Learning Session
Ohio Room, Curris Center
Session Chair: Dr. Howard Whiteman
1:30 p.m. – 3:30 p.m.

Jennifer Block – Wildlife Biology – Zoological Conservation
Clean Up of the Creek Behind the Biology Building

Tricia Ladd – Biology
Creation of a Website for Blood River Bottoms Wildlife Management Area

Chris Lewzader – Biology
Every Bit Helps

Erica Ludtke – Wildlife Biology – Zoological Conservation
Raising Environmental Awareness Within White Residential College

Coy St. Clair – Biology
Range Extension of Puma concolor*: Are There Cougars in Western Kentucky*

Politics in Its Many Guises

Mississippi Room, Curris Center
Session Chair: Dr. Ann Beck
2:00 p.m. – 5:00 p.m.

David Borum – Political Science
Thanks to You, We are Through: Economic and Political Consensus on What caused the 208 Recession

Elizabeth Burton – Political Science and History
Discrimination at Murray State? An Examination of Murray State University's Affirmative Action Plan

Joshua Cardwell – Political Science
Delusional Voting: Is What You See What You Want?

Chase Clanahan – Political Science
Just War to Jihad: A Comparative Analysis of St. Augustine and Abdullah Azzam

Brittany Crouch – Political Science
Dahl's Democracy & Plato's Polis

Crystal Eldridge – Political Science
The Price of Medical Malpractice Liability

Trey Hargrove – Political Science
Bang for Your Buck: Do Americans Receive Quality Healthcare for the Price They Pay?

Greg Hunter – Political Science
An Underrepresented World: Expansion of the UN Security Council Vote

Stephanie Jones – Political Science
Too Many Opinions: An Analysis of How Public Opinion Impacts the U.S. Congress

Scott Kirk – Political Science
An Evaluation of Brits and Yanks: The Incumbency Advantage and its Presence in the Election Process of the U.S. House of Representatives and British House of Commons

Matthew McMain – Political Science
Grading the Presidents: Presidential Failure

Steven Pardell – Political Science
Forecasting the Future for a Wet Trigg County

Mia Walters – Political Science
In Order to Form a More Perfect European Union: The Road to the European Constitution

Watershed Studies Institute

Research Symposium

Barkley Room, Curris Center
Session Chair: Dr. Howard Whiteman
3:30 p.m. - 5:30 p.m.

Tom Anderson – Water Science
The Effect of Relative Density on Competition Between Two Larval Salamanders in Western Kentucky

Catherine Aubee – Biology
Through the Looking Glass: Hormone Analysis as a Tool for Conservation

Emily Croteau – Biology
Assessments of Polymorphic Microsatellites for Parentage Assignment in a Facultatively Paedomorphic Salamander, Ambystoma talpoideum

Brett Davis – Water Science
Fish Community Response to Phragmites Removal at Clear Creek Wildlife Management Area

Emily Dustman – Biology
Effects of Roads on Sex Ratio and Body Size of Freshwater Turtle Populations

Todd Levine – Biology
Phenology of Annual Peak Densities of Zooplankton in Kentucky Lake

Dongjiao Liu & Kelly Hargrove – Biology
On the Relationship Between Species Diversity and Productivity: A Test Using NASA MODIS NDVI and Plant Species Informatics from Kentucky

Cy Mott – Biology
To Paed or Not to Paed: Kin Aggression and Developmental Pathways in a

Amy Krzton-Presson – Water Science Biology
Effects of Common Reed Management on Reptile and Amphibian Populations in the Clear Creek Wildlife Management Area
Rachael Isom – English Literature
Borrowed Glasses

Hannah Mullis – Organizational Communications
All That He Wants

Freshman Reading Experience Essay Contest Winner's Session

Ohio Room, Curris Center
Session Chair: Dr. Kelley Wezner
3:30 p.m. – 5:00 p.m.

Brandon Eggenschwiler – Business Administration
It's Kind of a Sad Story Actually

Sarah Ellis – English/Creative Writing
It's Kind of a Funny Story

Noel Haskett – Public Relations
It's Kind of a Funny Story

John Hicks – English/Creative Writing
Internal Geographies

Other

How to Make Your Campus Greener Award Ceremony
Outside, Carr Health
Contact: Ms. Sarah Kelty
2:00 p.m. – 2:30 p.m.

Faculty Recognition Banquet
Large Ballroom, Curris Center
Contact: Ms. Donna Miller
6:00 p.m. – 7:30 p.m.
(Faculty and Professional Staff Only)

Performance

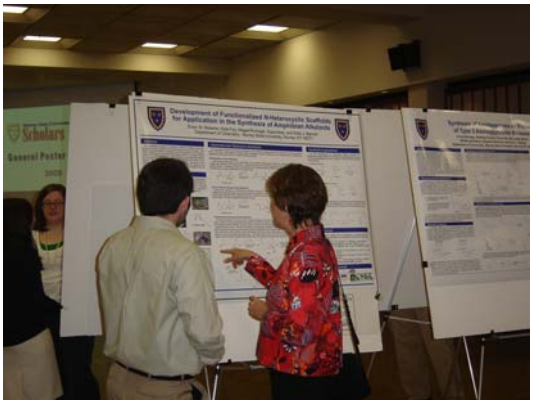
Provost's Concert (Wind Ensemble)
Lovett Auditorium
8:00 p.m.

Friday, April 23, 2010

Oral Sessions

Service Learning in Chemistry
Ohio Room, Curris Center
Session Chair: Dr. Kelly Rogers
9:30 a.m. – 10:20 a.m.

Presentation by Dr. Bommanna Loganathan, 2009-2010 recipient of the Service Learning Mentor of the Year Award, and students: Kristi Adair, Emily Morris, Erica Riley, Harry Anderson, Ashley Driver, & Ashley Winkler



Special Recognition

2009-2010 Undergraduate Research And Scholarly Activity Grants

Recipient	Faculty Mentor(s)
David Adams	Dr. Paula Waddill
Lauren Allard	Dr. David Eaton
Jennifer Barrett	Dr. Renae Duncan
Lori Craven	Dr. Dan Wann
Mary Crowe	Dr. Alysia Ritter
Lucas Tanner-Gray	Dr. David Eaton
Robin Holland	Dr. Everett Weber
Sarah Kelty	Dr. Cynthia Gayman
Sudan Loganathan	Dr. Alexey Arkov
Nicole Newton	Dr. Arthur Pallone
Tin Nguyen	Dr. Andy Kellie
Bradley Oliver	Dr. Kevin Revell
Sarah Peddie	Dr. Rachel Allenbaugh
Christopher Robards	Dr. Andy Kellie
Kristen Ruga	Dr. Rachel Allenbaugh
Lauren Schmidt	Dr. Maeve McCarthy
Stefan Schnake	Dr. Ted Porter
Meredith Stevenson	Dr. Ted Porter
Josh Stump	Dr. Mike Bowman
Kristen Tinch	Dr. Meagan Musselman

2009-2010 Undergraduate Research Scholar Fellowships

Recipient	Faculty Mentor
Dylan Benningfield	Dr. Bommanna Loganathan
Sarah Hargis	Dr. David Canning
Stacey Reason	Mr. Dick Dougherty

2009 MSU Alumni Association Distinguished Researcher Award

Ms. Nicole Hand, College of Humanities and Fine Arts

2009 MSU Alumni Association Emerging Scholar Award

Dr. Alexey Arkov, College of Science, Engineering and Technology

2009 MSU Distinguished Mentor Award

Dr. Renee Fister, College of Science, Engineering and Technology

David Adams – Psychology
Mentor: Paula Waddill
Temporal *Discounting of Necessities and Luxuries*
Temporal discounting is a phenomenon in which individuals tend to opt for immediate gratification at the expense of the greater long term reward when faced with a choice in the present, but reverse their preference as the choice becomes temporally distant. For example, when given the choice between $10 today and $11 tomorrow, most people will choose to take the $10 today. However, when the choice is between $10 in a week and $11 in a week and a day, people tend to wait and take the $11. It has also been shown that individuals are more likely to choose luxuries over cash prizes of greater value than they are to choose necessities over cash prizes of greater value. As the choice between a luxury and cash of greater value is moved into the future, the trend to choose the luxury increases. The purpose of this study was to determine what effect necessities and luxuries have on the temporal discounting phenomenon. In order to determine what items should be used as necessities and luxuries, a pilot study was performed. Using the top seven luxuries and top seven necessities determined by the pilot study, a series of purchasing decisions was generated. Each participant was asked to make a decision for each item - all necessities and all luxuries - at each of four different time frames. Results revealed main effects for both type of item (necessity vs. luxury) and for time frame as well as a significant interaction.

Lauren Allard – Economics
Mentor: David Eaton
Evaluating Public Policy Towards the Obesity Epidemic
Across the globe scientists and economists alike have been examining the fact that while the amount of calories ingested by consumers has increased over time, intake has not been balanced by a proportional increase in physical activity. As a result, consumers worldwide are rapidly gaining weight. This trend has led many nations to begin examining the obesity epidemic and its effect on the private and public costs of maintaining a healthy lifestyle. Also under consideration by these countries are regulatory actions to encourage weight loss and healthier lifestyles. The impact of regulatory actions on consumption decisions has been well studied in the areas of smoking and alcohol abuse. This research uses the methodological frameworks developed in these areas to assess the newer health issue of obesity and to evaluate potential public responses to this health issue. To determine the impact of information requirements and regulatory actions on consumers' health related consumption decisions, this paper examines the impact of the 1990 Nutrition Labeling and Education Act, and the 2004 policy implemented in Denmark banning food products containing more than 2% industrially produced trans-fat. This research hopes to not only understand what public strategies may be successful in creating policies to assist in fighting the obesity epidemic but also to propose suggestions on how to combat this "rapidly expanding" problem.

Leslie Allen, Kathy Quatro, & Tiffany Nalley – RN BSN Nursing
Mentor(s): Marian Smith & Linda Thomas

A Healthy Start with Peer Support

The Hopkins County Health Department offers many services. One is directly related to women, infants, and children, and is most commonly referred to as, WIC. In the month of December 2009, the health department delivered services to 174 postpartum clients. The statistics showed that only 34 of these women were exclusively breastfeeding their newborn infant(s). Our group focused on a way to improve this number. We know that not all women will choose to breastfeed for whatever reason(s), however most do at least attempt to breastfeed immediately after birth and continue while in the hospital with assistance as needed from staff and a lactation consultant. We found upon return to the health department to register the infant for WIC services, most mothers had given up breastfeeding merely due to lack of support and the need for continued education. We focused in on a support group for these breastfeeding women. Peer counseling had been initiated in other Kentucky counties and after researching more about what peer counseling offered and its effects on the breastfeeding population, we considered working with the health department to initiate a peer support group. After much discussion and planning, leaders of the health department breastfeeding areas agreed to trial the peer counseling. Our efforts and research will hopefully make a difference. We hope to see at least 25% of all WIC postpartum patients continue to breastfeed for at least six months after birth by the end of 2012.

Tom Anderson – Water Science
Mentor: Howard Whiteman
The Effect of Relative Density on Competition Between Two Larval Salamanders in Western Kentucky
Temporary pond ecosystems are model study systems for examining community interactions such as interspecific competition. Many experimental studies have been conducted on larval pond salamanders; however, fewer studies have examined interactions in natural populations. Spotted (Ambystoma maculatum) and mole (Ambystoma talpoideum) salamanders coexist throughout much of their distribution, but coexistence in breeding ponds is infrequent. Furthermore, the two species' competitive dynamic is well-known from laboratory experiments, but information from natural ponds is limited. The study objective was to determine relative densities of larval A. maculatum and A. talpoideum, assess their habitat use within pond communities and examine competitive interactions. Sampling of thirty woodland ponds was conducted in Land Between the Lakes National Recreation Area, Kentucky in June 2009. Larval salamander density was estimated for each pond, and individual size measurements (e.g. snout-to-vent length) were taken for each salamander. Of the sampled ponds, seventeen contained A. maculatum only; eleven contained both focal species and two ponds held only A. talpoideum. When coexistence occurred, A. maculatum outnumbered A. talpoideum by approximately 14:1. However, A. talpoideum was, on average, larger in SVL than A. maculatum, providing a potential size advantage in competitive interactions. Density and SVL did not differ for either species when comparing single-species ponds versus mixed-species ponds. Thus, the competitive interaction between these two species may be, in part, driven by the combination of larval density and body. Density data will be used to further examine competitive dynamics in a mesocosm setting, using the proportions observed in natural ponds.

Erin Atha, Leah Reising, Jennifer Weber – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Suzy Crook
Big Brothers Big Sisters Toy Drive
The Big Brothers Big Sisters Toy Drive wass developed in order to give the kids of the Calloway County chapter toys to recieve at their annual Christmas party. The program was also designed to give the community an opportunity to give back during the holiday season. This program was successful and each student learned a lot about planning programs efficently and effectively. If this program was done again, more publicity would be neccessary, as well as a more visible location if open to the entire community. The program could also be better if there was an incentive to give, if campus organizations and students were involved. The toy drive was a success, but with any program there is always room for improvement.

Catherine Aubee – Biology
Mentor: Howard Whiteman
Through the Looking Glass: Hormone Analysis as a Tool for Conservation
Environmental stressors can have profound ecological impacts when individual effects are aggregated or interact on a population, community, or ecosystem level. We discuss the utility and limitations of hormone analysis as a tool to enhance ecological evaluations of environmental stress. Two case studies are presented. We are currently deploying an enzyme immunoassay (EIA) to measure plasma hormone levels in a pond-breeding salamander exposed to the herbicide Roundup. In another study, radio-immunoassay (RIA) and EIA were used to measure fecal glucocorticoids as an indictor of capture stress in the endangered Pacific Pocket mouse. Results suggest that endocrine endpoints, while highly variable, can yield valuable insights regarding anthropogenic effects on physiology; however, life history and ecological context are critical to the interpretation and application of the data.

Jessica Barker - Biology
Mentor: Claire Fuller
The Effects of Atrazine on the Immune System of Crickets
Many herbicides are used in farming and in other various ecological environments; often the effects of these chemicals on native plants and animals is poorly understood, particularly sublethal effects. The purpose of this experiment is to test the effects of the herbicide Atrazine on the immune system of common crickets in order to gain insight to its' effects on other terrestrial organisms. This experiment will test a sample size of 300 specimens. Fifteen groups of 4, each group containing two males and two females will be set up for each concentration level (Control, 0.1x, 1x, 10x, 100x). The death rates were monitored for four days and after this a hemolymph-phenyloxidase assay and a hemocyte assay were performed on 10 crickets from each concentration, five males and five females. Ten crickets from each concentration were also injured to induce an immune response and a hemolymph-phenyloxidase assay was completed 24 hours later. If Atrazine negatively affects cricket immunity, I expect a drop in white blood cell numbers and a lower hemolymph-phenyloxidase level. The crickets exposed to the highest levels of the herbicide are expected to show the greatest negative change in their immune system and the highest death rate. This experiment will focus on whether the organisms are affected by the herbicide and how much they are affected. This study is important because every organism is potentially threatened by the numerous chemicals used in the eradication of weeds and pests.

Laura Barrow, LaMora Garcia, & Jessica Altman – RN BSN Nursing
Mentor(s): Marian Smith & Linda Thomas
Fall Prevention Education Among Nursing Home Residents

Falls among the elderly are a major concern. One in three adults age sixty-five and older fall per year. Nursing home residents are at a greater risk of falls than the general elderly population. This is because the residents living in nursing homes are usually frailer, have chronic health problems and mobility difficulties. On average, three out of four nursing home residents fall annually. These falls produce outcomes ranging from minor scrapes to major injuries and sometimes fatality. With this in mind, project participants chose to implement a teaching project at a nursing home in Tennessee. The concentration was to educate the staff of the risks to residents, staff and the institution when residents fall. Project participants trained the staff on issues that place a resident at a higher risk for falls. Through the literature review, students learned that the first step to reducing the incidence of falls is for caregivers to understand the risk factors associated with falls. In addition, project participants instructed the staff on the institution's falls prevention program. The program has been in effect for years, yet the percentage of falls has not diminished. Fall prevention programs are necessary, however if staff is unfamiliar with the program or unmotivated to implement the program, falls will continue to be a problem in the institution. Due to this project that concentrated on fall risks and the falls prevention program, project participants hope to see a significant decrease in falls by the end of the year.

Tracy Woods-Beck – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Ronda Rodgers
Applying Accreditation of Echocardiographic Department Through ICAEL

The purpose of the Intersocietal Commission for the Accreditation of Echocardiography Laboratories (ICAEL) is to ensure high quality patient care and to promote health care by providing a mechanism to encourage and recognize the provision of quality echocardiographic diagnostic evaluations by a process of voluntary accreditation. Through the accreditation process, laboratories assess every aspect of daily operation and its impact on the quality of health care provided to patients. While completing the accreditation application, laboratories often identify and correct potential problems, revising protocols and validate quality assurance programs. Because accreditation is renewed every three years, a long-term commitment to quality and self-assessment is developed and maintained. Laboratories may use ICAEL accreditation as the foundation to create and achieve realistic quality care goals. The intent of the accreditation process is two-fold. It is designed to recognize laboratories that provide quality echocardiographic services. It is also designed to be used as an educational tool to improve the overall quality of the laboratory by providing a set of standards that every accredited laboratory is to follow. My project is to assist the Echocardiographic Department of Owensboro Medical Health System to obtain this accreditation.

Dylan Benningfield - Chemistry
Mentor: Bommanna Loganathan
HPLC Method Development for Triclosan Analysis in Environmental Samples
Triclosan (2,4,4'-trichloro-2'-hydroxyphenyl ether) is a common antibacterial ingredients in household and personal care products such as soaps, dental care products, first aids, cosmetics, and many other various products. Wide spread use of these products resulted in environmental contamination by triclosan. Triclosan is considered as one of the emerging new pollutants in the environment and reported to cause harmful health effects in aquatic organisms. Understanding contamination levels of this pollutant is important in preventing further contamination and protecting living resources from the harmful effects of this compound. In this study, a High Performance Liquid Chromatography (HPLC) method was standardized to measure triclosan in wastewater and river water samples. The HPLC instrument was calibrated using five different concentrations of triclosan. The instrument detection limits and method detection limits were calculated. Water samples from Clarks River, Bee Creek , Kentucky Lake , and local wastewater treatment samples were collected and analyzed using the above method. The results revealed that detectable levels of triclosan were found in Clarks River and wastewater treatment plant samples. Elevated levels of triclosan (53.5 µg/L) were found in influent samples from the local wastewater treatment plant followed by effluent (46.0 µg/L), Downstream Bee Creek (10.7 µg/L), Upstream Bee Creek (3.9 µg/L), KY Lake (2.7 µg/L), Clarks River I-94 (1.8 µg/L), and Clarks River Squire Holland (0.3 µg/L).

Jennifer Berger – Agriculture
Mentor: Iin Handayani
Cultivation Impacts on Selected Soil Properties of Vicksburg Series
Vicksburg soil series are considered the most productive soils with regard to corn and soybean yields in Kentucky, USA. Cropping practices change soil properties which eventually can influence the ability of soil to support crop growth and development. The objectives of this study were to: (1) determine the cultivation impacts on selected soil properties; and (2) establish baseline soil data that can be used for future comparisons. Sample sites were located in Calloway County consisting two fields, forest and 10 years of no-till. Samples from various soil horizons of each field were analyzed for soil organic matter, soil water content at air dry condition, water holding capacity, bulk density, total porosity, and particulate organic matter. Three replications were performed for this experiment. Results from this study will be presented during the scholar week. Changes of soil properties due to cultivation imply that soil monitoring is important to maintain the quality and fertility of the land to produce better crop yields.

Cathy Bethel – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, Michele Vincent, & Stephanie Epley
Improving Medical/Surgical Nursing Compliance with Heart Failure Core Measures
Heart Failure (HF) is a chronic disease that diminishes the patients' ability of self-care due to weakness related to the compromised cardiac and respiratory systems. Heart Failure (HF) is a Joint Commission core measurement focus area. The purpose of this project was to improve medical/surgical nursing unit compliance with HF Measures. Compliance rates for discharge instruction for May 2009 were 14%. A convenience sample of 18 nurses on the medical/surgical unit at Muhlenberg Community Hospital in Greenville, Kentucky participated in this survey. A HF questionnaire administered to nursing staff concerning the required six elements (activity level, diet/fluid, medications, follow-up with physician, symptoms worsening, weight monitoring) revealed misconceptions about patient discharge instruction. A data comparison of nursing knowledge of the elements with abstracted data from patient charts revealed that the implemented tools refined their practice. Despite their lack of familiarity regarding the measure, the compliance percentage improved with application of interventions. Education alleviated misconceptions about discharge instruction. The development of a tracking tool provided the nursing directors the opportunity to identify which nurse is accountable for HF core measure compliance or noncompliance. Designating roles (admitting nurse, discharge nurse, nurse who signed off orders), can drive education to noncompliant individual nurses or recognize compliant nurses for job performance. By improving nursing compliance with HF core measures, the long-term results are quality patient outcomes and improved scores for comparison to other facilities.

Jennifer Blasdel, Tamara Hughes, & Angela Johnson – RN BSN Nursing
Mentor(s): Marian Smith & Linda Thomas
How Well Do You Speak SBAR?
During the spring semester of 2010, I have noticed that lack of patient information is becoming a paticular problem when transitions from one health care provider to another takes place, or a patient is being transfered from unit to unit. Effective teamwork and communication is critical to deliver safe and reliable patient care. JCAHO expressed that communication errors account for the majority of sentinel events that occur in the workplace. Effective teamwork and communication can help prevent and correct communication errors, decrease patient risk, and increase overall satisfaction for the patients, familes, and nurses. The implementation of a simple tool called SBAR (Situation, Background, Assessment, and Recommendation) communicaton can help decrease ineffective communication and improve teamwork for the staff. This leads to an overall increase in satisfaction of nurses and patients.

Jennifer Block – Wildlife Biology, Zoological Conservation
Mentor: Howard Whiteman
Clean Up of the Creek Behind the Biology Building
The creek behind the biology building is always full of trash and garbage. Not only is this obviously bad for the environment, and the wild life inhabiting the creek, but it decreases the beauty of our lovely campus. I chose to clean up the section of the creek that starts at Calloway and 16th and runs to the Trinity Christian Center on 18th St. (this is approximately .78 miles.) I separated the trash into non-recyclables, plastics, and alumni cans paper products and glass bottles. The bags were then counted and weighed to determine how much trash was initially taken out of the creek. For the two weeks following, an entire sweep of the creek was done each additional week to determine the amount of trash that accumulates in the creek on a weekly basis. By cleaning up the creek, not only was I able to create a healthier environment for the wildlife in the area, I was also able to enhance the beauty of campus.

Emily Blue, Lauren Wheatley, Jeremy Teague – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Jennifer Wilson
Masters of Disaster
Masters of Disaster is a program conducted by three YNL 350 students from Murray State University through the American Red Cross. The purpose of this program is to educate the fourth grade students of Mrs. Handegan's classroom at Murray Middle School on tornados, earthquakes and general disaster preparedness. During the program a PowerPoint, poster, video and personal story were used to present basic information regarding the cause and effects of tornados and earthquakes and how to properly prepare for these types of disasters. The students were able to participate in two activities and take home a worksheet to their family. Overall the program was a success. Mrs. Handegan was pleased with the presentation and the students were actively involved as demonstrated by their participation in the activities and asking questions throughout the program. In the future, a more up to date video should be used during the program in order to draw attention to the topic being covered.

David Borum – Political Science
Mentor: Ann Beck
Thanks to You, We are Through; Economic and Political Consensus on What Caused the 2008 Recession
By compiling a literature review on trends of governmental regulations on banks I seek to answer what cause, if any, have economists and political scientists most attributed as the cause for the 2008 recession? And, do economists and political scientists agree? I plan to find that contemporary economist and political scientist agree that by allowing investment banks to risk depositors' money in the Gramm-Leach-Bliley Act of 1999, Congress created new mega-mergers who made errant investments with little to no detectable risk. Furthermore, I plan to find that political scientists agree with economists that it was those seemingly risk free investments i.e. sub-prime mortgages and credit default swaps that caused the 2008 recession.

Alice Bradshaw – Nutrition
Mentor(s): Kathy Timmons & Cindy Clemson
Development and Acceptability of a Low Sugar Granola Bar
The average American has become so busy and tries to accomplish so many tasks in a day that many more meals and a great portion of the daily nutrition is being consumed on the go. Consumers have also become more health conscious, especially the aging baby boomers, who are at growing health risk(s) as they age they begin to face many health concerns leading to a rise in products touting themselves as being low fat, reduced sodium, having no trans-fat and being rich in antioxidants . Coupling theses two societal facts together has caused many food manufactures to develop diet and "healthy" prepackage foods that can be eaten directly out of the box, grab and go. A consumer market survey of these products has indicated that in the granola bar segment, food manufactures are not serving a rapidly growing consumer base, the busy health conscious individual, who need or want low sugar healthy products. The newly introduced sweeteners, which are stevia based, may offer a possible acceptable solution to the problem of how can you make a granola bar sweet tasting and low sugar.

Sarah Brock – Spanish
Mentor: Mica Howe
The Works of Frida Kahlo Through the Elements of Art
The works of Frida Kahlo tell stories of a life full of pain. She reveals her trials and tribulations not only through the scenes that she paints but also by the technical elements that she uses to paint them. These elements are sometimes difficult to find and understand but through closer inspection of Kahlo s work one can easily experience her art in a more personal manner because of them. Kahlo s use of color, form, texture, and composition in order to add to the significance of the message she is trying to convey just as much as the actual scene she is painting. For example, her use of colors such as red and black represent a sense of sadness and fear; however her small additions of colors such as blue and violet relay a sense of hope and happiness to the audience. It is important to pay attention to these technical elements in order to fully understand the piece while one is analyzing it. This presentation will explore these elements along with the choice of subjects in the works and its composition used by Kahlo to express herself through her art. It will explain how the artist uses color, form, texture, and composition to add complexity to her work rather than just merely showing a scene through characters. Finally this presentation will explore her life s work and her attempt to tell her audience that her life was much more than just pain and suffering.

Miranda Brown – Spanish
Mentor: Mike Waag
Uniting the Colonized: International Solidarity as a Strategy for Achieving Environmental Justice
Murray State University uses coal to supply our electricity, some of which comes from mountaintop removal sites in West Virginia, where extractive industries have suppressed Americans into third-world conditions. While coal bosses get rich off of "black gold" the people are oppressed by hazardous waste near their homes, degradation of water and soil resources, and faltering health, all which they are reluctant or afraid to protest for the sake of their dangerous jobs, for their fragile economy. We think of, and all too often accept, these conditions existing in other parts of the world, but it is the same extraction-based economy which creates these common conditions worldwide. The colonial economy faraway in the country of Colombia emanates these same circumstances. In my presentation for Scholars Week, I plan to share observations from my trip to Colombia, to briefly describe the conditions in the Colombian departments of Cesar and La Guajira, which I traveled in the summer of 2009, where open-pit coal mining is rampantly displacing the minority populations, and to discuss how international support for oppressed peoples is a logical and powerful component of activism for ethical mining practices.

Maggie Browning – Economics
Mentor: David Eaton
The Impact of Marital Status on Economic Well-Being for Individuals and Families
In today's society it seems the importance of marriage has disappeared. People get married and divorced without thinking twice, without thinking rationally. But, it is thought in economics that people do indeed make rational decisions when it comes to money. So, when love and money are joined together, do people still make rational decisions? I hope to find out if it is economically beneficial to be married versus getting divorced or staying single, and what is the impact of marital status on economic well-being for individuals and families. Doing research about the incomes and economic standing of singles, married people, and divorced people will be my first method or research. A lot of research has been previously done on this topic, so that past research should be very useful. I also plan to find statistics on marriage and divorce rates by various categories including: age of first marriage, income level, and race to set a good context. I hope to add to the current literature that is available and expand on what already has been found.

Lauren Buch – Recreation and Leisure Services
Mentor: Kelly Rogers
Service Learning through Murray Calloway County Park and Recreation
Students enrolled in REC 101 Introduction to Recreation and Leisure Services were required to complete 15 service-learning hours at an area agency, organization or facility that provides recreation services. Service-learning hours for this project were completed through the Murray-Calloway County Park and Recreation Department. Service activities included setting up and working at the Trail for Treats Halloween event, maintaining and operating a disk golf course and helping in the administration of Christmas in the Park. This experience allowed the student to explore potential career options as well as gain hands-on experience related to course objectives.

Holly Buchanan & Elizabeth Rouse – Dietetics
Mentor: Kathy Timmons
Acceptability of Pureed Beets as a Partial Fat Substitute in Red Velvet Cupcakes
According to the American Heart Association, "heart disease is the number 1 killer of Americans." Some of the factors that can lead to heart disease include hypertension, obesity, high blood cholesterol, and a low intake of fruits and vegetables, all of which are preventable risk factors. As the population's propensity toward lower fat, higher fiber, and more nutritious foods increase, there is a greater demand for these types of foods to fit the needs of consumers. Beets as a fat replacer can reduce the amount of saturated fat, lower the calorie content, add dietary fiber while providing beneficial vitamins and minerals that contributes to healthy living, which can lead to a lower risk for cardiovascular disease. The purpose of this experiment is to determine the acceptability and palatability of pureed beets as a fat substitute at the levels of 25%, 50% and 75% fat replacement in red velvet cupcakes. The sample population will consist of a minimum of at least 50 participants, randomly selected from the Murray, Kentucky student and resident populations and Paris, Tennessee population. The participants will be presented with 4 samples of red velvet cake, each coded with a 5 digit randomized number, one for each sample; control, 25%, 50% and 75%. The participants will then rate the acceptability based on both the Hedonic scale and descriptive methods. The Hedonic scale will measure palpability factors of appearance, color, texture, and acceptability and the descriptive methods will assess the samples based on color, texture, sweetness, aftertaste and overall acceptability. The cupcakes will also be tested for volume using seed displacement methods.

Glenna Buford – Applied Mathematics
Mentor: Christopher Mecklin
Impact of Agriculture on Amphibian Diversity in Western Kentucky and Tennessee
Agricultural impact on native environments has been considered to be the top cause for declines in diversity of local fauna throughout the world. Because of their dependence on water, amphibians are extremely susceptible to chemicals used in agriculture. Previous studies have concluded that pond size and temperature might have a greater impact on amphibian species diversity than the proximity of the pond to active agricultural activity. However, an equal amount of studies have concluded that agricultural chemicals and livestock disturbance have a negative impact on amphibian diversity. We sought to compare amphibian diversity in small ponds located within wooded areas in Land Between the Lakes Recreation Area to ponds located within agriculture in Calloway Co. Kentucky.

Elizabeth Burton – Political Science & History
Mentor: Ann Beck
Discrimination at Murray State? An Examination of Murray State University's Affirmative Action Plan
The purpose of this study is to examine Murray State University's affirmative action plan along with the federal affirmative action legislation as laid out in the EEOC. After closely comparing the guidelines and implementation of affirmative action policies, I expect to find that Murray's affirmative action plan complies with the federal regulations while also having extra precautions to ensure fairness in implementing the program.

Gloria Capps, James Davis, & Marilyn Roberts – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Kathy Dollahan
Creation and Implementation of a Standardized Charge-Report Tool for CCU Clinical Leaders
Handoff communication is the process of passing complete and accurate patient-specific information from one caregiver to another. In 2006, the Joint Commission on Accreditation of Healthcare Organizations mandated that all healthcare providers implement a standardized communication tool. Some clinical leaders on our unit have expressed concerns that shift reports are too often blurred by interruptions, distractions, and redundancy as a patient's stay on the critical care unit becomes lengthy. The purpose of our project is to establish guidelines for end- of- shift report that will assure pertinent information is communicated completely with the development and implementation of a standardized charge report tool. We surveyed the clinical leaders, director, and assistant director to determine what information they felt significant to include in our tool, as well as researched how other facilities have created templates and applied them into their daily practice. The data was evaluated and a sample tool introduced. The tool was revised after a 3 week trial using feedback from those involved. The result is a report tool that provides a consistent level of detail and organization of information that we feel enhances the continuity and quality of care to our patients, therefore improving patient outcomes.

Joshua Cardwell – Political Science
Mentor: Ann Beck
Delusional Voting: Is What You See What You Want?
Using the psychological model of consumer behavior to evaluate those who receive most of their political information through the medium of television, I examine the tendency to use candidate image rather than candidate ideology or candidate policy positions to determine a voting decision. I also go a step further by examining the possibility that this cognitive tendency which leads to a behavioral outcome is not the same when put into the context of the candidate being an incumbent rather than a challenger. I posit that a challenger is more likely to be evaluated on candidate image than an incumbent by the aforementioned demographic group.

Brittany Carpenter - Biology
Mentor: Claire Fuller
The Effect of Temperature on Immune System Function in the Caribbean Termite* Nasutitermes acajutlae *on St. John, US Virgin Islands
In tropical habitats climate change could have drastic effects on organisms that are accustomed to living at very specific conditions. In particular, small, ectothermic organisms that are dependent on the external environment to regulate most body functions, they may be devastated by even a few degree change in their environment. The goal of this study was to observe immune system function of the Caribbean termite *Nasutitermes acajutlae* when workers from warm and cool colonies are exposed to low and high temperatures (within the normal temperature range for St. John). Termites from ten warm and ten cool colonies were collected and placed in incubators at either 21oC or 27.2oC. Termites were allowed to acclimate for seven days and then immune response was measured. Unmanipulated control termites were also collected from each nest and immune parameters measured the same day. Immune system function was measured using hemocyte counts, cuticular, gut and hemolymph phenol oxidase (PO). Animals that were placed in warm temperatures had significantly lower hemocyte counts than animals in the cool or control treatments (ANOVA, $F=4.72$, $P=0.013$, $df=2,55$). Animals taken from warm nests had marginally lower cuticular PO ($F=3.68$, $P=0.061$, $df=1, 50$). Gut PO was also lower than controls in warm treatments ($F=3.57$, $P=0.036$, $df=2, 47$). There were no significant differences in hemolymph PO. Therefore, there was a decrease in most immune parameters for animals exposed to warmer temperatures. This suggests that tropical termites may have difficulty with everyday immune challenges as global temperature increase.

Amanda Carrico, Jody Cofer, Hannah Durbin – Youth and Nonprofit Leadership
Mentor(s): Bob Long & Judy Lyle
Great Start!

Great Start was a Youth and Nonprofit Leadership (YNL) project that collaborated with MSU Health Services and other campus constituencies to bring awareness to the harmful results of smoking. This project, unlike most completed by YNL 350: *Program Development* teams, was oriented towards bringing awareness to an issue using public policy and persuasion as opposed to more traditional service driven activities and events. This project encouraged MSU Racers to lay down their cigarettes on Nov. 19 for a "Great Start" towards a healthier future. The date of this program was selected to coincide with the American Cancer Society's Great American Smoke-Out. The project was a huge success in educating Racers on the harmful effects of smoking and found support to expand MSU's smoking policy.

Brianna Cassidy – Chemistry
Mentor: Bommanna Loganathan
Bisphenol-A in Drinking Water: A Possible Source of Human Exposure
Bisphenol A (2,2-bis(hydroxyphenyl) propane, BPA) is a man-made chemical used in industry and consumer products all over the world. BPA is used in plastic beverage bottles, canned food liners, compact disks, medical equipment, sports equipment, and many other products. Human exposure to this chemical is due to its leaching from plastics into food and liquids. Exposure to BPA is reported to cause major complications in the endocrine systems of many animal species and human populations. Knowledge concerning contamination levels of BPA is essential in order to prevent future contamination and to protect wildlife and humans from negative health effects from this chemical. Very limited information is available on the BPA levels in various brands of bottled drinking water, fountain water, river water, and lake waters. In this study, BPA concentrations were measured in several brands of bottled waters and water samples from Bee Creek, Clarks River, and Kentucky Lake. Enzyme-linked immunosorbent assay (ELISA) method was used to determine BPA levels in these samples. Results revealed that detectable levels of BPA were found in all samples analyzed. The results were compared with published reports and evaluated the potential exposure of BPA to human populations in this region.

Brianna Cassidy – Chemistry
Mentor: Bommanna Loganathan
Bisphenol-A in Drinking Water
The presentation will be centered on the migration of Bisphenol-A (BPA) into drinking waters. Effects of BPA and its regulations will also be mentioned The research that I have conducted on BPA will be presented with graphs, tables and photographs and will be the focus of the presentation.

Timothy Chandler & Darrell New – Nursing
Mentor: Denise Sikes
Streamlining the Admissions Process by Incorporating a One Call Transfer Center at Lourdes Hospital
The purpose of our project is to develop a standardized process to manage all admissions or transfers to Lourdes Hospital by following best practice and an evidence-based approach. Improving communication is a major part of this project so we developed a brochure that outlines each process step and includes contact information. The House supervisor will serve as the admissions coordinator and assist in managing this process. The transfer center would coordinate and streamline all admissions to one centralized location by utilizing computer technology and telecommunications. New innovative technology would improve patient and physician communication and satisfaction. By ensuring that each direct admit patient is aware of the admission location on arrival to the hospital and that Lourdes is notified of the admission in advance, patient safety will be improved. By improving all processes and patient outcomes, health care providers in our region would refer clients to Lourdes hospital, which would increase patient census.

Chase Clanahan – Political Science
Mentor: Ann Beck
Just War to Jihad: A Comparative Analysis of St. Augustine and Abdullah Azzam
The purpose of this paper is to analyze what difference occurs between St. Augustine's just War Theory and Abdullah Azzam's Jihad. The paper will discuss where these two theorists differ on the justification of war and why these differences occur. The paper will use a qualitative method to find the reasoning behind their differences and a comparison of these findings will be used to highlight the cause and effect of these differences on their respective attempts to justify war.

Rebekah Clay – Biology
Mentor(s): Terry Derting & Warren Edminster
Academic Stress and Blood Pressure
Stress is defined as the result of an individual's perceptions that they do not have the resources to cope with a perceived situation from the past, present, or future. Sources of student stress include meeting new people, career decisions, fear of failure, and parental pressure (Schafer, 1996). Other sources of stress include examinations, time demands, and financial pressures (Aherne, 2001). One study found that those who experience high levels of stress have a higher tendency to engage in unhealthy behaviors (Hudd et al., 2000). These include alcohol consumption (Morgan, 1997), smoking (Naquin and Gilbert, 1996), and an increased likelihood to consider suicide (Hirsh and Ellis, 1996). Two inventories that were used to measure stress and student life stress were the Academic Stress Scale (Abouserie, 1994) and the Student Stress Scale, a variation of Holmes and Rahe social readjustment scale. One health marker of stress that has been of interest is blood pressure. High blood pressure, also known as hypertension, has been shown to have a positive, inverse, and no relationship in different longitudinal studies (Mustacchi, 1990). However, hypertension has been linked to coronary heart disease, heart failures, and cardiac arrhythmias (Simon, 2009). Using the Academic Stress Scale and Student Life Stress Scale, relationships between blood pressure and academic stress and student life stress can be evaluated. These relationships were evaluated using a form of multivariate regression analysis. The surveys and blood pressure measurement were collected in the Curris Center. This research will be of use to see the relationship for students between academic stress, student life stress, and blood pressure which have not been previously evaluated.

Ashlee Cobb – Liberal Arts
Mentor: Kelley Wezner
Family Dynamics and Their Consequences in the Bennet Family
In Pride and Prejudice, Jane Austen s characterizations of the Bennet family members comment on parenting and birth order in early nineteenth-century British families. Mr. Bennet's absentee parenting style and general displeasure with his marriage, combined with Mrs. Bennet's singular focus on marrying off her daughters establish the major conflicts in the plot at the same time that they demonstrate how parenting shapes children s personalities and behavior. Moreover, Austen s use of five daughters illustrates the concomitant impact of birth order: the two older daughters, Jane and Elizabeth, act as substitute parents; the youngest daughter, Lydia, acts out the family s dysfunctions. Birth order also explains Austen s relative neglect in characterization of Kitty, the fourth of the five daughters. Austen s decision to have Mr. Bennet become aware of some of the damage sustained by his parenting style does suggest that change in parenting styles might be possible.

Breanna Copeland – Spanish
Mentor: Leon Bodevin
Oppression in Argentina
Racism was present in the lives of many others in the 1800's as well as today. The poem Martin Fierro, written by Jose Hernandez, shows many examples of the outsiders in Argentina being treated badly because they are considered lower class. However, this changes after Argentina wins their independence from Spain and begins a new style of government. This analysis is an exploration of Martin Fierro as a literary example of the Argentine historical reality of oppression. Also, a focus on the reasons behind the hatred towards "the other" in Argentina and the feelings of the characters in the poem.

Lori Craven – Psychology
Mentor: Psychology
Sport Fandom and Personality, 2010
Previous research on sport fans has found that level of team identification is positively associated with social psychological well-being (Wann, Melnick, Russell, and Pease, 2001). Specifically, highly identified fans have reported higher levels of social self-esteem, social life satisfaction, and lower levels of loneliness (Wann et al., 2001). The current investigation is designed to extend the previous research efforts by testing the relationship between identification and social avoidance and distress. There were three different questionnaires that the participants were asked to fill out, along with a demographic sheet. The questionnaires were, The Sport Fandom Questionnaire, a five-item scale assessing general sport fandom, The Sport Spectator Identification Scale, a seven-item scale assessing level of attachment with a specific team and The Social Avoidance and Distress Scale, a 28-item scale assessing avoidance and distress socially. These different types of questionnaires assessed the level of team identification and levels of social avoidance and distress. It is hypothesized that the more highly identified someone is with a sport team the less socially avoidant they will be. This research also indicated a unique relationship between sport fandom and social avoidance and distress.

Jennifer Crocker – English
Mentor: Barbara Cobb
Milton, Sin and the Feminization of Evil by the Roman Catholic Church
Milton is not nearly as misogynistic as the great matriarch of feminist criticism Sandra Gilbert would lead us to believe. His treatment of Sin is Paradise Lost is sympathetic to her status as a rape victim, and ultimately a condemnation of the Roman Catholic Church and their feminization of evil. Using Alexander Myers as a jumping off point, this paper points out common misconceptions of Milton's treatment of the personified Sin, culminating in an examination of St. Peter in both Paradise Lost and "Lycidas" as the Catholic Church taking the woman Sin's only positive work, keeping the key to the Gate of Hell.

Jennifer Crocker – English
Mentor: Kelley Wezner
Fanny Price and Colonial Power Structures
Fanny Price is the Other of Jane Austin's Mansfield Park. Using Jamaica Kincaid's A Small Place, this paper will compare the Sir Thomas's treatment of Fanny, as well as the rest of the Bertram family, with the historical treatment of the islanders of Antigua. I haven't actually looked at any scholarly work on this subject yet, but rest assured literary criticism will be part of this paper. I really want to focus on the power dynamics within Mansfield Park the residence and look at how those would correspond with social rules in Antigua during colonial periods. Sir Thomas rules over his family in absence the same way he would have ruled over his sugar interests in Antigua. Seeing Fanny as the Other, then looking at the reassigning of power in the family after the fall of both daughters is an indication of how eventually all Othered peoples come back to assume a power over the previous ruling class.

Jennifer Crocker – English
Mentor(s): Kelley Wezner & Tim Johns
"The Story of an American Farm" and the Failure of the Colonial Bildungsroman
Bildungsroman story arcs simply do not work within a colony, and break down even faster within a South African colonial context. Jed Esty, within his essay entitled "The Colonial Bildungsroman: The Story of an African Farm and the Ghost of Goethe," attributes this lack of progression through the "pervasive political and economic fact of imperial time: the colonies do not - cannot - come of age under the rule of empire"(426). Esty's conclusions are sound, yet he could pursue them much farther. In my paper, I explore the late-Victorian concept of the New Woman within Olive Schreiner's The Story of an African Farm and her character of Lyndall. I detail the different steps of a bildungsroman and further explain how Lyndall does not get to fulfill any of her relational goals because she is both a woman and a member of a colony. Lyndall would have classified as a New Woman had she been living within the European continent. Her South African heritage keeps her living the life that she would have wanted.

Brittany Crouch – Political Science
Mentor: Ann Beck
Dahl's Democracy & Plato's Polis
"What kind of governmental regime is the best regime?" is an eternal question in the field of political science. Presented here are two very different regimes proposed by two men with centuries between them. Robert A. Dahl proposes that democracy is the best possible regime, and sets standards for such a democracy to exist. Plato proposes that a polis, such as the one presented in The Republic, is the best regime. Here we examine Dahl's view on Democracy, including its requirements and advantages, and compare them to Plato's take on the Polis ruled by the Guardian class, as well as the entire structure of the Polis.

Emily Croteau – Biology
Mentor: Howard Whiteman
***Assessments of Polymorphic Microsatellites for Parentage Assignment in a Facultatively Paedomorphic Salamander,* Ambystoma talpoideum**
Environmentally-cued polymorphisms (polyphenisms) occur when discrete phenotypes are produced as a result of a genotype by environment interaction. One of the most intriguing polyphenisms among vertebrates is facultative paedomorphosis in salamanders whereby depending on the environment experienced during larval development, individuals either metamorphose into terrestrial adults or become paedomorphic, branchiate morphs. The mole salamander, *Ambystoma talpoideum*, is one such species that exhibits facultative paedomorphosis, and much is known about its ecology, however little data exists on the fitness payoffs to alternative morphs. Using a combination of microcosm experiments, field and molecular analyses we will characterize patterns of reproductive success. As a first step we optimized microsatellite markers to ascertain the degree of polymorphism and hence utility for parentage analyses. Thus far we have assessed polymorphism in 5 microsatellite loci, and ascertained varying degrees of polymorphism (number of alleles 4 - 11). With these levels of polymorphism it is our hope to create pedigrees of individuals to determine parentage of particular morphs, trace inheritance of morphs within families, and follow patterns of reproductive success.

Beth Crowe, Katie Donahue, & Rebekah Stanek – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Jenise Howard
Bridging the Gap
The purpose of bridging the gap was to create an activity that allowed college students to interact with the citizens of Hickorywoods. We also wanted the citizens to give back to the community; which will give them a sense of accomplishment. Our project went well and the citizens really enjoyed coming together as a group to make baby tie blankets, which they will be donating to Life House Care Center. This program is now going to be incorporated into their scheduled activities. Our final evaluation resulted in excellent records.

Mary Crowe – Psychology
Mentor: Alysia Ritter
Familiarity and Mnemonics: Effect on Location and City Name Recall
The purpose of this study was to determine the effect of two different mnemonic strategies (visual and verbal) on familiar and unfamiliar city name and location recall on a map. This study was based on research by Brigham (1993), Daneman and Ellis (1995), Dretzke (1993), Iglesia, Buceta, and Campos (2005), Rose, Cundick, and Higbee (1983), and Thorn, Gathercole, and Frankish (2002). One hundred fifty Murray State University students were given 1 of 6 packets. Three of the maps were of Russia and three were of Washington state. The second map of each packet presented the mnemonic strategy with the city names. Scores were based on a pretest-posttest design. There were several significant differences, $F(1,148) = 126.94$ $p < .01$, $F(2, 147) = 6.84$ $p < .01$, $F(1, 148) = 79.94$ $p < .01$, $F(2, 147) = 4.02$ $p < .05$. It was found that participants who were given the familiar packets recalled significantly more city name information correctly than did participants who were given the unfamiliar packets, for both city name recall and location recall. There were no significant interactions between familiarity and mnemonic strategies.

Karon Curtis & Mary Inman – Nursing
Mentor(s): Marian Smith & Linda Thomas
Proper Use of External Defibrillators Necessary in Survival Rate of Patients in a Code Situation
The correct use of medical equipment, including external defibrillators, is a crucial element in determining the outcome of a patient's health in a code situation. Lack of knowledge of health care workers regarding use of equipment can determine the life or death of a patient. The development of a PowerPoint presentation to be used in a classroom situation in order to educate healthcare workers at Jackson Purchase Medical Center in the correct use of a HeartStart XL external defibrillator was the focus and goal of this project. The outcomes of the interventions were determined by comparison of results of a pre and post class evaluation tool. Lastly, a quick reference card was developed and left on each code cart to be used by medical personnel during a code situation.

Brett Davis – Water Science
Mentor(s): Tom Timmons & Howard Whiteman
Fish Community Response to Phragmites Removal at Clear Creek Wildlife Management Area
Phragmites australis is an invasive aquatic plant found throughout most of the United States. Phragmites has been shown to alter wetland hydrology and is related to a decline in larval fish assemblages and egg development. Effective control and eradication of Phragmites is an option for biologists who wish to return affected wetlands to their pre-Phragmites state. Herbicide treatment has been shown to be effective at controlling Phragmites invasions. Clear Creek Wildlife Management Area (WMA) is an 858 acre property located in Hopkins County, KY which has been heavily impacted by the invasion of Phragmites. Kentucky Department of Fish and Wildlife Resources treated half of the WMA with herbicide in fall 2009 to restore the wetland by removing the Phragmites and allowing native flora to return. The goal of this project is to study the effects of this removal on the fish population in the treated area versus the non-treated area of the WMA. An additional non-Phragmites control area will be analyzed and compared to the two Phragmites sites. Kentucky Index of Biotic Integrity (KIBI), Shannon's Biodiversity Index (SBI), and the Jaccard Index will be used to track these changes in the fish community over the course of the study.

Jennie Dickerson – Spanish
Mentor(s): Leon Bodevin & Warren Edminster
The Oppression of Women in Mexico As Seen in Hasta No Verte Jes s M o
Women have had to fight for their rights in nearly every patriarchal society in the world. The same goes for the women of Mexico in the early 1900s. Hasta No Verte Jesus Mio is a testimonial novel by Elena Poniatowka that gives the reader an inside look into the struggle of women in Mexico around the time of the Mexican Revolution. The book is based on a series of interviews between Poniatowska and the main character of the book, Jesusa Palancares, who represents oppressed Mexican women as a whole during this time period. This presentation will investigate the struggle for women s rights by uncovering important historical facts about the history of the women s movement and the rights and conditions of women in the first half of the twentieth century highlighting several areas of inequality: the work force, male and female relationships, and the law.

Jennie Dickerson, Jameson Hill, & Lucy Love – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Jan Basile
Campus-wide Freeze Out
The immediate purpose of the Campus Wide Freeze Out event was to collect jeans and jackets to take to Needline. Other purposes included having participants understand how it feels to be cold for an extended period of time to understand what the less fortunate experience when they do not have a coat. Also, the project raised awareness about the needs of people in the Murray-Calloway County area and the availability, mission, and needs of Angel's Attic and the Angel Clinic. As a result of the project, several pairs of jeans and jackets were collected and donated to Angel's Attic and the majority of participants felt they learned something about the two organizations and would be interested in helping with another event in the future. The goals were met, although the group has decided on some recommendations to better the project in the future, including better participation and advertising.

Caitlyn Droste – Spanish
Mentor: Mike Waag
Defining Magical Realism
The term "magical realism" was first used in Germany to describe a visual art movement in the early 1900s and subsequently was used to describe a body of literature primarily based in Latin America. The definition of the term has suffered from misuse, as it has been incorrectly used interchangeably with "fantasy" and "the fantastic," generally referring to any work that departs from reality. "Magical realism," however, describes a work that allows the reader a glimpse of the world through non-Western eyes; thus to the Western observer, the world appears magical, yet it is seen as typical, mundane reality to the characters in the work as well as to the narrator. This literary term requires further distinction from associated genres. This study endeavors to define the literary genre of Magical Realism as it is demonstrated by selected short stories of Gabriel Garc'a M'rquez.

Caitlyn Drostle & Linsey Ivey – Dietetics
Mentor: Kathy Timmons
The Acceptability of Skim Milk, Soy Milk, Rice Milk, and Almond Milk as Substitutes for Whole Milk in Plain Muffins
Many people avoid consuming cow's milk due to a variety of reasons which may include dislike of dairy products, lactose intolerance, cow's milk allergy, or cultural or religious practices. As dairy products are the primary source of dietary calcium in the United States, it is important that calcium-rich alternatives are made available for those who choose to consume a dairy-free diet. Little is known about the functional properties of cow's milk alternatives such as soymilk, rice milk, and almond milk and thus these products are rarely used as substitutes for cow's milk in prepared goods (i.e. muffins). This study will be performed to determine the acceptability of substituting cow's milk with soy milk, rice milk, and almond milk in baking muffins. The typical muffin recipe calls for whole milk which is high in fat and saturated fat when compared with skim milk or the previously listed milk alternatives; thus this study will also explore the acceptability of reducing the fat content of the product by substituting skim milk for whole milk.

Daniel Duncan – Economics
Mentor: David Eaton
A "Fat Tax" and the Economics of Obesity
Obesity has become the 800 pound gorilla on the back of American society. The prevalence of obesity in American more than doubled between the (1976 1980) period and the (1999 2002) period increasing from 15% to 31% of society. With obesity reaching epidemic levels in this country, it has been suggested that there is a need for a so called Fat Tax, which is a tax on unhealthy foods, mainly of the fatty, sugary, and salty variety. Such a tax would be intended to raise revenues which could be used to offset government medical costs associated with obesity and fund nutrition education programs. It is the intent of this paper to examine the economic impact and rational of the implementation of a Fat Tax and the various other economic policy tools which could be uses to mitigate the problem of obesity in America.

Emily Dustman – Biology
Mentor: Howard Whiteman
Effects of Roads on Sex Ratio and Body Size of Freshwater Turtle Populations
It is important to carefully monitor and manage reptile populations as declines are on the rise. Certain reptiles, such as turtles, have evolved a suite of life history traits that can delay or inhibit population responses. Recent studies have reported demographic changes among turtle populations as a result of anthropogenic related factors. Populations of *Chelydra serpentina* and *Trachemys scripta* were studied in order to determine the potential impact of humans. Basic demographic information including sex ratio and body size measurements were evaluated at six different study sites that varied in isolation. An index was developed which was based on road density, distance from road, and traffic volume to reflect degree of isolation. Imbalances in sex ratio were found for *C. serpentina* at one study site and at two study sites for *T. scripta.* The index was not related to gender prevalence for any *C. serpentina* populations whereas it was for *T. scripta* populations, suggesting that increased human activity has a negative effect on female turtles. Of the individual variables comprising the index, none were found to be influencing gender prevalence of *C. serpentina* but there were significant differences in overall size of *C. serpentina* in relation to road density. For *T. scripta*, as distance from road increased, females were more likely to be prevalent and there were significant differences in overall size of *T. scripta* for all three variables. The results from this study indicate turtle populations are being impacted by humans, most greatly among *T. scripta*. Further research regarding the impact of humans on turtle populations is necessary and will help biologists manage populations to prevent decline.

A. Nicole Edison – Criminal Justice
Mentor: Kelly Rogers
Service Learning at Wranglers Campground
Students enrolled in REC 101 Introduction to Recreation and Leisure Services were required to complete 15 service-learning hours at an area agency, organization or facility that provides recreation services. Service-learning hours for this project were completed at Land Between the Lake s Wranglers Campground. Responsibilities included working at the campground gatehouse, patrolling the area and assisting rangers with land management related issues. This experience allowed the student to explore potential career options as well as gain hands-on experience related to course objectives.

Brandon Eggenschwiler – Business Administration
Mentor: Kelley Wezner
It's Kind of a Sad Story Actually
In Ned Vizzini's book, It's Kind of a Funny Story, Craig Gilner struggles with everyday life, becoming depressed and suicidal, and eventually checking himself into the mental ward of a local hospital. Craig takes everything that is going on in his life and puts a label, such as Tentacles, Anchors, or Cycling, on it. He does this to show himself that he is still in control of his life. Vizzini includes these words frequently, capitalizes them to make them prominent, and uses these words or phrases to help us understand what Craig is going through. Vizzini gives us words that we can see in our minds, unlike long medical words that most people can't even pronounce, leave people confused, or add to the discomfort of having a mental illness. With the words that he uses, Vizzini shines a light on a dark subject, taking away some of the fear and mental discomfort we have trying to accept mental illnesses.

Crystal Eldridge – Political Science
Mentor: Ann Beck
The Price of Medical Malpractice Liability
Contemporary malpractice liability costs account for at least 10 percent of total health care spending. Using an analysis of secondary sources, I looked at doctor behavior and malpractice insurance premiums. Doctors may practice defensive medicine with the aim to decrease the chance of liability. They may also charge higher fees in order to compensate for lost net income due to rising malpractice premiums. Lastly, larger liability payouts may cause malpractice premiums to rise. I find that doctors do practice defensive medicine, but it only accounts for a small portion of total health care spending. Malpractice insurance and physician fees have a positive relationship, but it does not account for a significant portion of total health care spending. Increasing physician fees and malpractice payments do not have a significant relationship with insurance premiums.

Sarah Ellis – English/Creative Writing
Mentor: Kelley Wezner
It's Kind of a Funny Story
Ned Vizzini's It's Kind of a Funny Story touches on many aspects of humanity and the human body. At first glance, it can be easy to see the common themes of friendship, depression, and transformation. However, with a detailed eye Vizzini's novel of depressed teen Craig Gilner encountering unique individuals in a mental ward can be viewed as an underlying comparison to a popular and peculiar children's movie classic: Alice in Wonderland. Vizzini parallels a handful of his secondary characters and small plot details in Disney's Alice in Wonderland. This equivalence illuminates the two common themes in both works: the importance of individualism and imagination. For Craig, the mental ward serves as a journey into his mind to combat depression and gain vast self-knowledge. Alice also journeys into her mind through dreams and her vivid imagination to learn why the real world is the way it is. Vizzini's novel and Disney's movie, when compared, highlight the importance of the journey into one's individual mind and the utilization of one's imagination.

Kim Emberton – Nursing
Mentor: Marian Smith
Positive Effects of a Home Like Environment in Long Term Care
For many years there has been a negative stereotype associated with long term care (nursing homes). The focus of this project is to separate Martin Healthcare from this classification. It is imperative that residents of long term care are made to feel more at home and be given more autonomy. We are striving to de-institutionalize the facility and create a shift in thinking and practices, causing a culture change in the way the day to day activities are completed. The goal is to create a person-centered home with long term care services, thus creating a higher quality of life and less occurrence of depression for these residents. Not only are we changing the aesthetics of the environment, but we are individualizing the schedules and practices in regards to activities of daily living.

Samantha Erwin – Mathematics
Mentor: Maeve McCarthy
The Mathematical Process of Computer Assisted Tomography
Computer Assisted Tomography is commonly used in modern medicine, but the mathematical equations behind it are a mystery to most users. This presentation will be an analysis of Cormack s two mathematical equations that made Computer Assisted Tomography possible. The creation of Cormack s equations and detailed explanations will be presented. The scope to which Computer Assisted Tomography has impacted biology will be discussed as well as the impact that these mathematical equations have on modern medicine. This will prove why Cormack s equations are in the top ten mathematical equations that changed biology.

David Farrell – Wildlife Biology & Tom Anderson – Water Science
Mentor: Howard Whiteman
Population Dynamics of* Ambystoma maculatum *(spotted salamander) and* A. talpoideum *(mole salamander) at a Breeding Site in Calloway County, KY
Understanding amphibian population fluctuations is an important goal of conservation, because of worldwide declines in amphibians and a general lack of knowledge about long-term population dynamics in this taxa. Mark-recapture methods for tracking *Ambystoma maculatum* (spotted salamander) and *A. talpoideum* (mole salamander) at a single breeding pond in Calloway County, Kentucky, have been used to estimate population parameters over four consecutive seasons. Salamanders were collected from January to early April, with peak movements in late February thru early March. We examined population estimates, survival, sex ratios, and breeding frequency, among other variables. Thus far, data for each species show a greater number of males migrating to the pond each year than females, with males arriving earlier in the year and present for a longer period than females. Analyses of other population and demographic data are ongoing, and will be discussed in the context of understanding amphibian population dynamics and the potential for competition between these two species.

Jaclyn Feezor – English Secondary Education
Mentor: Kelley Wezner
Austen's Letters Used to Lure Lovers
In Jane Austen's time and novels letter writing is a crucial and complex form of communication. The strict rules society followed ordered that only engaged couples or relatives could write to each other because of the intimate nature in which letters were written. Also, because of the cost of paper, ink, and mailing a letter, to write and or receive one could be considered a gift of one's mind and pocket. Austen uses letters to allow the reader vision into the character (who is writing) emotions. Through the language used, the handwriting, and the paper and envelope used, the person receiving a letter can read into these details to gain more meaning than just the words supply. In Sense and Sensibility readers see how intimate letters become when exchanged between Marrianne and Willoughby, in Pride and Prejudice Mr. Darcy is only able to express himself to Elizabeth through a letter, also, in Mansfield Park Fanny writes and receives personal letters from her brother William and cherishes the few lines Edmond wrote to her when leaving her a necklace. Marrianne, Elizabeth, and Fanny are so moved when they receive letters from the men in their lives. They speak of memorizing the lines, examining the handwriting, and keeping the letters forever. Through examining the manner in which the letters were written by the males, delivered, and then how the females reacted upon receiving the letters readers are able to connect with both male and female characters, see true emotion written out and then shown in response to reading the letters, and how important being able to write a letter was in order for the writer to be able to express him or herself emotionally in a society so strict with social standards.

Andre Foster & Jessica Carr – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Tonia Casey
Knick Knack Backpack
The Knick Knack Backpack Program is a drawing of goods that we have created in order to finically support the Backpack program supported by the Needline Food Pantry of Murray-Calloway County. The purpose of the Knick Knack Backpack Program was not only financially to support, but to raise the awareness around Murray State's campus of the poverty level in the Murray-Calloway County community and also giving the students the opportunity to lend a helping hand for a great cause. The program consisted of a series of days that included advertising, collecting donations, and setting up a table encouraging students to donate to the cause. The Needline's Backpack Program was discussed and implemented into the advertising and selling of drawing tickets. At the end of the Knick Knack Backpack Program, the results indicated the selling of twenty-five tickets which was equivalent to twenty-five dollars, along with a generous donation from Kids' Company after-school program of an abundance of various snack goods.

Kevin Garrett – Spanish
Mentor: Mica Howe
The Use of Metaphors in the Burlesque and Satirical Poems of Golden Age Spanish Poets
The baroque poetry of the Spanish Golden Age was saturated with metaphors that were used to mock and poke fun at traditional values of the era, and also to expose the hypocrisy of the upper class in society. The poets of the Golden Age didn't just attack the so called nobility of the country, but they used their poetry to express their disdain for other literary works from Spain and from other countries in the region. They wrote about works from that time period as well as works from antiquity. This paper explores the types of metaphors used in poetry of that age by the most popular poets such as G'ngora, Quevedo and Lope de Vega. It also investigates the reasons for such satire, as well as the reason for the use of certain specific types of metaphors in these works, such as the use of food elements to represent people, locations or sexual organs.

Morgan Geile – Biology
Mentor: Maeve McCarthy
The Application of Midified PageRank TM Algorithm in Order to Predict Coextinctions in the Natural World
In the natural world, organisms are all interconnected with one another. Therefore, should one organism go extinct, it is very likely that others will follow. It is difficult, however, to predict which of these coextinctions will occur because of the complexity of interactions that exist. Therefore, by modifying and applying the PageRankTM algorithm, used by Google, such predictions can be attempted. On the Internet, millions of websites are connected through hyperlinks, similar to the relationships between living organisms. The PageRankTM algorithm takes these links and, based on the search, ranks the different pages in order of importance, or the number of links connection with that page that rely on the page. When applied to the natural world, importance is measured by the number of species that rely on one individual species. Therefore, by modifying the PageRankTM algorithm with an eigenvector, to include a damping factor, it can be applied to already known knowledge of species interaction, with the result of predicting coextinctions. This modified algorithm, like PageRankTM, uses a recursive method, answering the question, which species, will cause the most devastation, and from that it can be predicted which species will most likely be a part of the resulting coextinction.

Kandi Good – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, Debbie Bauer, & Beth McCraw
JSMC: The Road to Latex Freedom
Studies of the general population suggest that at least 6% may have anti-latex IgE antibody. This number seems to be increasing. Because of this increase, it is important that facilities devote accurate resources to weigh the pros and cons of converting to non-latex. The purpose of this project is to do a cost analysis of latex exam gloves versus non-latex exam gloves, update the current latex policy and conduct a small test of change using non-latex gloves. Although, it is not feasible to change an entire facility to non-latex in such a short amount of time, it is possible to gather enough data to validate such a change in the future. This is the goal of the project: to lay a foundation that will validate converting Jennie Stuart Medical Center to a non-latex facility be it a sweeping across the board conversion or a simple step-by-step conversion.

Gina Gordon – English Literature
Mentor: Rusty Jones
William Shakespeare's Defense of Women
Shakespeare was ahead of his time in his sensitivity to emotional abuse of women, and in his plays, provides examples of women who suffer emotional abuse as it is defined in the present time.

Ludmila Gorodetska – Spanish
Mentor: Mica Howe
The Archetype of La Llorona
La Llorona or "the crying woman" is a famous figure in Latin American folklore. She is seen as a woman who killed her children and still cries for them every night. La Llorona was punished for killing herself and her children and became a wondering ghost. There are many versions of the legend and all of them follow the main idea of a man betraying a woman. The story is still passed on from generation to generation and told children in order for them to be scared of la Llorona's ghost and return home after the sun is down. However, in the reality the legend has a deeper meaning; la llorona is an archetype that represents both history and culture. She is a social symbol and a character of Latin American women and can be compared to other female characters from different cultures in the world with a similar fate.

Lucas Tanner-Gray – Economics
Mentor: David Eaton
The Economist's Sandbox: Economic Research in MMORPGs
Understanding the impact of policy changes on the economy has always been difficult, but there is a possibility that policy analysis could have another tool in massively multiplayer online role playing games (MMORPGs) such as World of Warcraft. While MMORPGs are not exactly new, they have recently gained great popularity. These games are played in a virtual world where each player has a character and can interact freely with the other players in the game. Because players can interact and trade items with each other, there is a market system in place that forms the foundation for an in-game economy. While there is very little research that has been done exploring the possibility of using MMORPGs for policy analysis, research is expanding in the area of virtual economies. This research is intended to explore the similarities and differences between online economies as they exist in MMORPGs and real world economies. If the virtual economies display a strong relationship to actual economies, there is a possibility that, policy makers would have a new arena in which to implement and gauge the effects of economic policy before it is implemented in the real world.

Nick Hall & Sydney Gholston – Nutrition
Mentor(s): Pearl Payne & Kathy Timmons
Differentiation Between the Levels of Sweetness in Bananas Using Different Stages of Ripeness Through Oxidation in Banana Bread
The purpose of this research project is to study each of the characteristics of color, texture, taste, crispness, general appeal of banana bread made from bananas at different stages of ripeness. The experiment will involve an observation of color, texture, and taste evaluation, and the overall acceptability of the banana. The experiment will continue by a baked product in the form of banana bread to determine by sensory analyst to determine the sweetness of the banana bread and if it is greater by a more or less ripened banana.

Dustin Haneline – Economics
Mentor: David Eaton
Tenncare Implications on Hospitals
My research involves a case study of the implications of the healthcare reform within Tennessee with emphasis on the policy of Tenncare. By examining the changes that Tenncare had on the state of Tennessee through multiple regressions I will be able to conclude whether or not Tenncare positively or negatively affected the hospitals within Tennessee. I plan to extrapolate these findings to the United States in general and try to apply how the new healthcare reform will apply to hospitals across the United States.

Sarah Hargis - Nursing
Mentor: David Canning
Cell Adhesion Mechanisms of Neural Stem Cells
Differentiation of cells in the neural tube takes place fairly early in embryonic development and occurs at both the tissue level and the cellular level, rearranging themselves and becoming either neurons or glial cells. This begins the formation of the brain in the neural plate. Various combinations of transcription factors and proteins lead the neural stem cells to differentiate into specific functions. The purpose of my study was to determine the role and mechanism of chondroitin sulfate in the process of neural cell differentiation and adhesion. Using chick embryos at stages three to twenty of development, I cultured the neural plate and/or the brain and ran cell adhesion assays on them. I hypothesized that when chondroitin sulfate was removed from the extracellular matrix in the epiblast, the cadherins lacked the normal boundary regulation and, as a consequence, the cells had increased cell-to-cell adhesion. The result of this increased cell-to-cell binding delayed the stem cells differentiation and diverted them to turn into midbrain cell types. By running several adhesion assays with varying levels of chondroitin sulfate, I was able to determine whether or not chondroitin sulfate alters the strength of adhesion of the stem cell relative to control cultures.

Trey Hargrove – Political Science
Mentor: Ann Beck
Bang for Your Buck: Do Americans Receive Quality Healthcare for the Price They Pay?
My thesis is that Americans pay the highest prices for healthcare, but the healthcare we receive is average when compared to other developed countries. I conducted thorough research examining multiple countries healthcare systems. The aspects that were reviewed include avoidable admissions rates for multiple diseases, survival rates, non-medical determinants of health, and prices of care. My results confirmed that Americans pay the highest prices for healthcare, but the quality of healthcare Americans receive is not the highest in certain areas. Quality care in cancer was very high, but dealing with multiple other diseases it was average or low.

Hillary Harris – Nutrition/Dietetics & Jodi Rickert – Nutrition Food Management
Mentor(s): Kathy Timmons & Beth Rice
The Acceptability of Sunflower Seed Butter as a Substitute for Peanut Butter on Sandwiches and in Cookies
This project was designed to test the acceptability of sunflower seed butter in a spread and in a cookie. It was designed to help individuals with peanut allergies.

Noel Haskett – Public Relations
Mentor: Kelley Wezner
It's Kind of a Funny Story
Few people want to talk about depression, anxiety, and mental wards. Even if people don't mention them, however, they still exist, probably more than people realize. In a society where everything must be politically correct, and properly brought up people don't discuss mental disorders in polite conversation, one author dares to tell the story of his five days in a mental ward. In his novel, It's Kind of a Funny Story, Ned Vizzini's use of potentially offensive, everyday language and first person narration, and portrayal of a believable dynamic main character come together to create a compelling story of living with a mental condition and learning how to cope with it. Vizzini has created a story and a character that forces the world to look at people with a mental disorder differently. He has introduced a character that could be anyone, anyone who has ever felt overwhelmed by life.

Brandon Hester, Annett Fowler, & Mark Johnson – Occupational Safety & Health
Mentor: Tracey Wortham
An Ergonomic Analysis of a Tire Manual Material Handling Operation for Potential Musculoskeletal Problems and Solutions
Ergonomics is referred to as the science related to people and their work, embodying the anatomic, physiologic, and mechanical principles affecting the efficient use of human energy. There are over half a million musculoskeletal disorders (MSD) reported annually in the United States. Risks involved in MSDs include: awkward postures, repetitive motions, forceful exertions, contact stresses, static postures, vibration and extreme temperatures. Manual material handling operations contributes to over half of the reported MSDs; and involve strains and sprains to the lower back, shoulders, and upper limbs. It is the intent of this analysis to observe, quantify, evaluate, and make recommendations for improved manual material handling in a tire wholesale facility. Observations shall include but are not limited to: measurements of the tire diameters, and weight of the tires, horizontal location of the load relative to the body, vertical location of the load relative to the floor, vertical distance the load is moved, frequency and duration of the lifting activity, asymmetry, and quality of the worker's grip on the load. Utilizing multiple checklists such as the NIOSH Task Analysis, Materials Handling, Lifting equation and the Liberty Mutual Lifting/Lowering Tasks checklists on site and further analysis with multiple software programs such as Rapid Upper Limb Assessment (RULA), 2D Biomechanical Model and the Strain Index we intend to quantify the risk of producing a musculoskeletal in this heavily manual work environment, and attempt to supply practical engineering, administrative control methods as well as improved work practices to address any issues found.

John Hicks – English/Creative Writing
Mentor: Kelley Wezner
Internal Geographies
Ned Vizzini's *It's Kind of a Funny Story* introduces the concept of the "brain map," a metaphorical method that displays the inner workings of the brain as a city or some sort of terrain specific to the person. The brain map also raises interesting theories and questions: what would the brain map be like if we had physical or mental problems? Would the brain map consist of what we thought of the world or terrain around us? What would another person's brain map look like? What would our own brain maps look like? Brain maps could describe a personality, a life style, or a thinking process. Mapping out ourselves allows us to see who we really are and what we think of the world. It is a journey inward that reveals aspects of the mind that we could not have seen otherwise, an exploration of ourselves and what we want out of life, a representation that deeply reflects the knowledge and perspective of human nature. A brain map, in short, is a way to apply the many uses of a map to explore not only our brain but the way we see the world, our world, a way to depict the processes of thought, emotion, and life.

Robert Hobson, Jayme Kahne, & Matt Black – Occupational Safety & Health
Mentor: Tracey Wortham
Ergonomic Risk Factors Associated with Hospital Custodians
This case study was performed at a hospital to evaluate and analyze the ergonomic risk factors associated with the forces involved with pushing and pulling custodial carts. Before completing the task, the participants were given a discomfort survey to rate any pain/discomfort they have felt associated with performing their job. A mock scenario was set up using a fully loaded cart and participants were asked to push and pull the cart a predetermined distance. Both the initial and sustained forces required to move the cart were measured using a push/pull gauge. In addition, the participants' body postures when performing the task were measured using a goniometer. The data collected from the task evaluation was analyzed using three ergonomic metric tools: 2-D Biomechanics Model, Liberty Mutual Push/Pull Tables, and the NIOSH Materials Handling Checklist. Recommendations will be made once the final analysis of data is complete.

Robin Holland – Pre-Veterinary Medicine
Mentor(s): Everett Weber & Ed Zimmerer
Pedigree Analysis to Determine the Mode of Inheritance of White Markings in the Norwegian Fjord Horse
Many breeds of equines have characteristic white markings that are undesirable in some breeds and may be predisposing factors to conditions including squamous cell carcinoma, photosensitization, and equine pastern dermatitis. We are determining the mode of inheritance and affected lineages in the Norwegian Fjord horse, a unique and rarely studied breed. Studies on the Hessian saddle horses, and most notably the Arabian horses, have concluded that white markings have a multifactorial mode of inheritance; however, the inheritance is unknown in the Fjord horse. Fjords are a unique source for genetics studies, because, unlike other breeds, crossbreeding is not allowed. The Fjord pedigree contains 9,609 horses, and because Fjords with white markings are underreported, we had little confidence in the accuracy of the records. We distributed surveys to Fjord associations and gave presentations to promote the study. Currently, 411 surveys have been received, with 37 previously unrecorded accounts of white. We have found four cases where horses without white were bred and produced a foal with white, which negates simple dominant inheritance. We have not yet been able to eliminate recessive or multifactorial inheritance patterns. From marking verifications in select pedigrees, we currently believe that white markings are inherited as a dominant trait with incomplete penetrance (which looks similar to recessive and multifactorial inheritance in pedigrees). By presenting our results to breeders, they will have the resources to make more informed breeding decisions, and hopefully decrease the chance of pathological conditions associated with white markings occurring while maintaining the breed's physical characteristics.

Aron Huckaba – Chemistry & Mathematics
Mentor: Maeve McCarthy
Fisher's Fundamental Theorem of Natural Selection: Population Genetics and Chemical Kinetics
In 1930, R.A. Fisher introduced a theorem which would help explain the mathematics behind natural selection. He stated that, "The rate of increase of fitness of any organism at any time is equal to its genetic variance at any time." Derivation of a general model of the fundamental theorem will be described, and its variables explained in detail. Applications of the theorem towards its intended use is explained, as well as another application: chemical kinetics. The theory behind this dual use is highlighted, as is a model for variable transport.

Greg Hunter – Political Science
Mentor: Ann Beck
An Underrepresented World: Expansion of the UN Security Council Vote
Many scholars believe there needs to be an expansion of the United Nations Security Council vote. In the paper I use secondary analysis to examine the topic and to find results. The results that I found were they were many scholars who are in favoring of expanding the Security Council vote for the expanding world.

Joshua Hyatt – Mathematics
Mentor: Rob Donnelly
Application of the Poset of Irreducibles
Live Math! A small background and preview to applications and new results of Markowsky's Poset of Irreducibles for Finite Lattices. When wishing to solve a problem it is sometimes easier to work backwards than to try and solve it forwards. But can it be easier to solve a problem upside down than right side up? Is that even possible? In a live math demonstration we will see it is possible to find Markowsky's Poset of Irreducibles for any given lattice by solving it upside down.

Melvin Ingram, Ronald Sickles, & Alex Walton – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Carrie Groves
Let's Get R.E.A.L. (Reading Enhances Academic Lifestyles)
Let's Get R.E.A.L. is a free reading comprehension program that we offered at Main St. Youth for the students that attend and those that needed help with reading skills throughout the community. Through this program we reached several different students and taught them ways to better understand their assignments. In addition to this we taught them that learning does not always have to be straight and narrow, but that it can be fun and interactive. Through this they (students) were able to grasp concepts that they previously could not understand. The program was successful, we got multiple students out and the areas that we addressed were key areas that they needed the most help in.

Rachael Isom – English Literature
Mentor: Kelley Wezner
Borrowed Glasses
The perceptions people hold about life are determined by the way in which they view the world, by their glasses. Each person has a unique set, but one can also attempt to understand the perspective of another by swapping spectacles. In his novel It's Kind of a Funny Story, Ned Vizzini opens readers' eyes to the true meaning of success by forcing them to look at the concept anew through the lens of Craig's cynical but illuminating perspective. The author creates a candid first-person narrator, whose unique vision conveys his ever-changing attitudes toward success, begging the reader to reexamine societal standards and ultimately revealing that individuals must envision their own path toward fulfillment through the discover y of their own definitions of success. Vizzini draws from personal experience, writes in the present tense, and utilizes the rather peculiar symbol of maps to allow the reader to see through Craig's eyes as he recalls his own tumultuous quest for success. The characterization of Craig's attitude elucidates the theme of defining success because it uses Craig's influences, predispositions, and thoughts to draw attention to his distinct vision, or the picture, of the fulfillment that rests within his own mind.

N. Monica Jameson – Spanish
Mentor(s): Susan Drake & Mike Waag
Is Mexico a Culture that Overshadows Women?
Yes, it is expected for women in Mexico to stay at home taking care of their children and devoting the largest part of their lives to their upbringing and education. Also, it is customary for women to do the house chores and to sacrifice themselves, their ideals and their own profession for their family's sake. These factors prevent them from being able to reach their full potential and to develop their own professional capabilities. The focus of my research will be two works of the author Elena Poniatowska: *Here's to You Jesusa* and *The Night of Tlaltelolco*. Two testimonial novels that exemplify the strict roles women have carried out through the years in the Latin American society, as well as their constant struggle to be a full part of their own culture.

Angela Johnson, Tamara Hughes, & Jennifer Blasdel – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Tracy Woods
S-Situation, B-Background, A-Assessment, R-Recommendation (SBAR) Communication
SBAR stands for situation, background, assessment and recommendation. Situation is the communicator conveying the current circumstances. Background is communicating the circumstances leading up to the situation. Assessment is communicating what may be the problem. Recommendation is suggesting how the problem could be corrected. Using SBAR, the person must organize their thoughts, outline the information, know what they are asking for and effectively convey the message. SBAR is recommended over other tools because it contains a statement of the problem, provides background information, gives factual data to assist decision making and provides an opportunity for requesting action. It is a framework for succinct implementation to provide continuity of care. Joint Commission states sixty three percent of sentinel event occurrences are caused by communication breakdown. Poor communication has also been recognized as a primary factor with medical malpractice claims and major safety violations; including errors resulting in patient deaths. SBAR has proven to be effective in many health care organizations to enhance communication. It reduces or prevents harm, increase satisfaction for providers, patients and families and promotes positive outcomes. New graduates appreciate this tool because it help them become organized and build confidence. Veteran nurses appreciate it because they don't feel aggressive. This process is easily learned, remembered, adapted and proven to facilitate communication.

Autumn Johnson & Chastity Johnson – RN BSN Nursing
Mentor: Marian Smith, Linda Thomas, & Jerry Robertson
Admission Checklist Tool to Improve Nursing Documentation and Obtainment of Orders for Continuum of Patient Care on Transitional Care Unit

Documentation is an accurate reflection of a patient s care and serves as a means of communication between providers. Insufficient documentation and lack of orders can result in legal ramifications for nurses, compromise a patient s continuum of care, and may result in denial of payment for services. The implementation of an Admission Checklist Tool was developed to improve documentation and obtainment of orders by nursing staff on the Transitional Care Unit at Regional Medical Center. Outcomes of this intervention were evaluated by conducting pre and post chart audits. To assess for compliance in utilization of the tool by staff nurses, the number of admissions were compared to the number of completed tools submitted to the clinical leader. Lastly, questionnaires were distributed to nursing staff to identify if communication of the admission process data between nurses at shift change was enhanced. Outcomes of the study revealed 77.8% of nursing staff were compliant in the utilization of the Admission Checklist Tool. Responses to questionnaires by nursing staff portrayed the tool was useful as a guide in completing documentation and order requirements as well as improved communication between the nurses at shift change. Pre implementation chart audits showed 62.5% lacked required documentation and 12.5% lacked orders for treatments. Whereas, post implementation chart audits indicated no deficits in required documentation and 8.3% lacked orders. This study showed utilization of the Admission Checklist Tool improved documentation requirements and obtainment of orders by nursing staff on the Transitional Care Unit.

Dianna Johnson – Agriculture/Environmental Soil Science
Mentor: Iin Handayani
Impact of Mulch Sources on Selected Soil Properties during Habitat Restoration

The role of a yard is important for aesthetic and practical values. Yards provide open space for families to enjoy nature, as well as an area for horticulture. Therefore, yards need to be maintained to be sustainable for future uses. The objective of this research is to evaluate the impacts of various mulches applied on a yard with regard to the improvement of the soil. Seven sources of mulching materials were used for this study. Those treatments include newspaper and straw mulch over cleared soil (08T07); oak, hickory leaf litter (08T13); hardwood bark mulch (08T14); newspaper, and straw over existing vegetation (08T05); traditional compost heap (08T12); pine needle mulch (08T16); and straw mulch over existing vegetation without paper (08T01). Control treatments include 2006 and 2008 composited soil samples from 14 locations at the study site prior to restoration and from neighboring lot, respectively. Soil physical properties such as soil compaction, bulk density, water holding capacity, porosity, and macroporosity were determined following two years of habitat restoration. Results from this research will be explained during the presentation. Information from this study would be beneficial to help homeowners and communities understand the role of various mulches for soil structure improvement.

Kassandra Johnson – Liberal Arts
Mentor: James Gedra
The Correlation Between Depression and Self-Monitoring
The degree to which self-monitoring with goals was correlated with anxious, depressed, and a mix of anxious and depressed individuals was examined in this study. A purely anxious group, a purely depressed group, a group of individuals with both anxiety and depression, and a control group were tested using a questionnaire. Multivariate tests showed that compared to both other experimental groups, the group of purely depressed individuals had significantly less self-monitoring. The differences between the purely anxious group and the group with both anxiety and depression were not significant. The implications of these results are as an assessment tool for depressed individuals.

Matthew Jones – Criminal Justice
Mentor: Paul Lucko
Dog Eat Dog: The Organized Crime of Dog Fighting
Animal fighting arouses outrage both for its inhumanity and for its association with illegal gambling. The Federal conviction of a high profile professional athlete for his involvement in an interstate dog fighting ring in 2007 called attention to the persistence of animal fighting in the United States. This presentation examines the history of animal fighting, considers current laws and focuses upon dog fighting as an organized criminal activity in both the United States and Kentucky. A discussion of breeding and training methods and a graphic description of a typical fight provide graphic details that illuminate the grotesque nature of this illegal sport. Policy recommendations conclude the presentation.

Stephanie Jones – Political Science
Mentor: Ann Beck
Too Many Opinion: An Analysis of How Public Opinion Impacts the U.S. Congress
While determining some legislation to pass, Congress must look at what the public wants. After the midterm election years of 2002 and 2006, the decisions made by 108th and 110th U.S. Congress regarding major legislation were directly impacted by the public's opinion and the president's influence. In my research, I plan to focus on legislation that had a great deal of media coverage, such as the Medicare Prescription Drug, Improvement and Modernization. For the research of my article, I will look at past studies done that are similar to my topic. I will continue to find more secondary sources to research that have already done analysis on this topic. Also I will look at major legislation that has been passed, and see how each member of congress voted. The conclusions I hope to get will show that all the major legislation Congress has passed in the 108th and 110th Congress has been what the public wants. Furthermore, I hope to show the president plays an important factor in the public's opinion because if the public supports him, then Congress will as well.

Jayme Kahne, Ryan Rhleder, Ashley Henderson, & Nawal Zakari – Occupational Safety & Health
Mentor: David Fender
GEM Electronic Vehicle Noise Study
Small electric utility vehicles have many advantages over the vehicles they typically replace such as pickups. These vehicles are 100 percent battery-electric, emit zero tailpipe emissions and are quieter than internal combustion engine vehicles. This quiet operation which is normally considered an attribute of the vehicle can also be a hazard, especially to pedestrians. Pedestrians use both their eyes and ears to detect traffic and the low noise levels of these vehicles may be hazardous for pedestrians crossing streets or when vehicles operate in areas where pedestrians and vehicles must share the space such as sidewalks to reach buildings such on college campuses or parking lots. This study demonstrated that the electric vehicle got much closer to the individual before they recognized that a vehicle was going by them compared to the internal combustion engine vehicle. In addition, a a noise-making device was applied to one vehicle to see if this was practical and if it helped pedestrians recognize a moving vehicle sooner.

Sarah Kelty – Spanish & Shraddha Chakraddhar – Liberal Arts
Mentor(s): Bob Long & Cynthia Gayman
How Old Will You Be in 2050? Why Youth Need to Be at the Forefront of the Climate Movement
With the increasing threat of climate change, it is imperative that the world s youth have a voice in international negotiations and decisions which will affect their future. How Old Will You Be in 2050?: Why Youth Need to Be at the Forefront of Climate Change is a panel discussion that draws on the research and experience of honors students Shraddha Chakraddhar and Sarah Kelty and faculty member Dr. Bob Long. Chakraddhar, with an academic background in the sciences, will present an overview of the scientific findings of the climate change, with reference to the Intergovernmental Panel on Climate Change (IPCC). Sarah Kelty will draw from her URSA-funded experience in the 2009 United Nations Climate Change Conference to discuss how youth are currently taking part in the fight against climate change on a national and global scale. She will address the Roger Hart s Ladder of Young People s Participation, and the steps toward achieving independent, self-governing youth movement. Dr. Long will share his experience in engaging youth in local environmental projects abroad, and give concrete examples of how youth are effective agents of change.

Steven Kinnard – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Libby Downs
All Saints Welcome Open House
The "All Saints Welcome Open House" is a special event that involves adults, High School Youth Groups, and adolescents from Saints Peter and Paul and Grace Episcopal Churches of Hopkinsville, Kentucky, creating a positive relationship between the two organizations and the community. This is accomplished through teaching their respective faith based history and architecture to each other and citizens in the community. Objectives of the program were met through participants teaching faith based history and architecture, increasing the High School participation and by cultivating a sense of citizenship between the religious organizations and citizens through ministry activities.

Scott Kirk – Political Science
Mentor: Ann Beck
An Evaluation of Brits and Yanks: The Incumbency Advantage and its Presence in the Election Process of the U.S. House of Representatives and British House of Commons
The incumbency effect is more important in the U.S. House of Representatives than in the British House of Commons election process. Using secondary sources I will explain the reasons behind this occurrence. I expect to find that candidate incumbency offers a greater advantage during elections in the U.S. House of Representatives, than in the British House of Commons.

Tricia Ladd – Biology
Mentor: Howard Whiteman
Creation of a Website for Blood River Bottoms Wildlife Management Area
This project will provide public information on a section of the Kentucky Lake Wildlife Management Area which is located in New Concord, KY. This little-known area could provide a wealth of public awareness, appreciation, and knowledge of the area and the wildlife within the tract. This website will encourage sustainable ecotourism of this area along with many others, which will hopefully raise appreciation of the outdoors and the need to live an eco-friendly lifestyle.

Becky Lane – English Literature
Mentor: Kelley Wezner
The Weight of Indiscretion: Fallen Women in the Work of Jane Austen
In several of Jane Austen's novels, she presents the plight of the "fallen woman" an unmarried female facing extensive societal disgrace and ruin due to the indiscretion of her actions. Within the context of Austen's era, unmarried women were forbidden to engage in a variety of inappropriate contact and interaction with unmarried men. The injudiciousness of such a connection, once undertaken, resulted in a devastating shun affecting not only the woman involved, but her entirety of her family. My dissertation will examine the portrayal of these women within Austen's work and the historical accuracy of the public rejection subsequently placed upon themselves and their families. Further, I will hypothesize Austen's intention in this integration of fallen women within the course of her work.

Shelley Laneve, Samantha Grau, & Donna White – RN BSN Nursing
Mentor(s):Marian Smith, Linda Thomas, & Cindy Barnes
Nursing Home Health Assessments Lead to Early Intervention and Enhanced Care
Murray State University RN BSN Program On January 1, 2010 a revised information collection set (OASIS-C) was mandated to be used on all Medicare/Medicaid adult home health patients. In order to conform to OASIS-C, revised plan of care/communication orders needed to be implemented. Several changes were made regarding assessment criteria which now recommend that home health nurses include appropriate interventions for assessment findings in their physician s orders. In order to accomplish this, a form was developed to assist in the communication between home health nurses and physicians regarding parameters of care for patients. This form was then presented to Regional Medical Center s Home Health planning team for review and approval. Upon implementation this form will help improve communication between Regional Medical Center s Home Health staff and collaborating physicians in compliance with OASIS-C.

Lyndsi Leith – French
Mentor: Janice Morgan
Contempt: A Comparison of the Life and Art of Jean-Luc Godard
Jean-Luc Godard was a pioneer of the French New Wave Cinema of the 1950's and 1960's but he believed that cinema itself was a dying art. One of his greatest films, Contempt, based on the novel of the same name by Alberto Moravia, became the means for Godard to express these sentiments of contempt. Not only was this film a way to verbalize his views on the future of cinema, it was also an expression of Godard's frustrations with his own life and divorce from his wife, Anna Karina. This presentation will explore the parallels between film and reality, emphasizing Godard's influence and beliefs. It will convey that the personal life of an artist is reflected in his works and show how Godard was able to transform an existing story into a manifestation of his own ideals.

Todd Levine – Biology
Mentor: Howard Whiteman
Phenology of Annual Peak Densities of Zooplankton in Kentucky Lake
Zooplankton are critical to the functioning of aquatic ecosystems and are an important part of lake and reservoir food webs. We used data from our 20-year long monitoring program on Kentucky Lake, a large mainstem reservoir on the Tennessee River system, to describe spatial and temporal patterns in zooplankton abundance. Twelve sites have been sampled every 16 days in spring through autumn months and every 32 days in winter months. Limnological parameters, including temperature, dissolved oxygen and chlorophyll a concentrations, are collected by standard methods. Zooplankton are collected in triplicate at mid-water column or 5 meters depth using a 15-L Schindler trap. The entire contents of each trap is identified, enumerated, and archived. Descriptive statistics were extracted and preliminary analyses conducted via linear models. Sensitivity to summary statistics for replicate counts was assessed using permutation tests. Years for which no discernable maxima could be determined were excluded. Significant differences existed between taxa and years, but not sites, in both densities and timing of peak densities. Populations across the lake appear to act homogeneously at the temporal and spatial scales for which we have long-term data. In addition, the phenology of many of the species in the zooplankton community has changed, with maximum densities becoming earlier in the year. Depending on how the rates of changes occur, interactions among zooplankton species are likely to be altered. Such alterations could create mismatches in consumer and producer communities.

Dongjiao Liu & Kelly Hargrove – Biology
Mentor(s): Kate He & Robin Zhang
On the Relationship Between Species Diversity and Productivity: A Test Using NASA MODIS NDVI and Plant Species Informatics from Kentucky
Finding an effective method to quantify species compositional changes in time and space has been an important task for ecologists and biogeographers. Recently, exploring regional floristic patterns using data derived from satellite imagery, such as the normalized difference vegetation index (NDVI) has drawn considerable research interests among ecologists. Studies have shown that NDVI could be a fairly good surrogate for primary productivities. In this study, we used plant distribution data in the Kentucky state to investigate the correlations between species composition and NDVI within defined ecoregions using Mantel test. Our analytical approach involved generating compositional dissimilarity matrices by computing pairwise beta diversities of the 120 counties in the state for species distribution data and by computing Euclidian distances for NDVI time series data. Our results showed a significant positive correlation between species compositional dissimilarity matrices and NDVI distance matrices. We also found that the strength of correlation increased at a lower taxonomic rank. Same trends were discovered when incorporating variability in phonological patterns in NDVI. Our findings suggest that remotely sensed NDVI can be viable for monitoring species compositional changes at regional scales.

Renee Levesque & Sarah Hargis – Biology
Mentor: Terry Derting
***Energy Costs and Trade-Offs of the Adaptive Immune System in Old-Field Mice* (Peromyscus polionotus)**
A high energetic cost of adaptive immune defenses is assumed in theoretical discussions of immune responses in animals. Little quantitative data are available to test the assumption, however, especially for mammalian species. We tested the null hypotheses that 1) there is no difference between energy expenditure of challenged and passive cell-mediated and humoral immune systems and 2) there is no change in the cost and magnitude of a humoral immune response when a cell-mediated immune response is introduced. To test these hypotheses, we used humoral and cell-mediated immune-challenges as the independent variables. Using adult male old-field mice (Peromyscus polionotus), we measured antibody production, inflammation, metabolic rates, and organ masses to assess the energetic cost and energy trade-offs of cell- mediated and humoral immune responses, and interactions between them. Our results supported the assumption of a significant energetic cost of cell-mediated, but not humoral immune defense. More studies are needed to further evaluate the costs of adaptive immunity in mammals.

Chris Lewzader – Biology
Mentor: Howard Whiteman
Every Bit Helps
The purpose of my project is two-fold: 1) acquaint local middle and high school students with our natural resources in Western Kentucky and 2) provide students with an enjoyable experience cleaning our environment. The objective of my project is to stress the need of contributing to efforts of conserving and protecting natural resources, at the same time, demonstrate how contributing just a few hours can positively impact our environment and natural resources. In an attempt to better acquaint local school students with the out-of-doors, I have organized, scheduled and guided a 2010 Youth Hunt for the Clarks River Chapter of the National Scholastic Sportsman Program (NSSP) which took place on Saturday, January 30, 2010. Members of Clarks River NSSP were invited to participate with the scheduled 2/27/10 Clarks River National Wildlife Trash Pick-Up Day in the small community of Elva Kentucky, where the students could learn more about how they can be part of our nations conservation efforts. Majoring in wildlife, I feel that the out-of-doors holds endless opportunities of activities that provide education, relaxation, and pleasure for those who participate in outdoor activities. Unfortunately, since family lifestyles have changed over the years, children have become accustomed to using technology rather than familiarizing themselves with the environment, in which they live. While conservation of resources is an ongoing commitment, in the end, it is my hope that students will come to value the importance of contributing personal time as well as to have a desire to become a leader in participating in activities such as these that will better our environment.

Jessica Lindsey, Katie Locke, & Kristen Smith – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Teri Cobb
Wii Workshop
The purpose of the Wii Workshop was to teach the members of the Senior Citizens Center how to play the Wii Nintendo. We wanted them to have fun while being social and active while learning something new. We also wanted to build a relationship with the participants. We brought in Mario Kart and Rock Band for the Wii and taught them how to play those particular games. The center already had a Wii for themselves but the members only knew how to play bowling. We thought it would be interesting to bring in a new game and give them a variety to choose from. We also had brownies and chex mix for them to snack on. Overall, the program was a success. The members thoroughly enjoyed us and would love for us to come back!

Sudan Loganathan - Chemistry, Michael Creed, Christina Jackson, & Dan Varonin - Biology
Mentor: Alexey Arkov
Studying Germline Stem Cells Using the Fruit Fly as a Model System
Stem cell biology is a promising area of research which is likely to advance medicine and human health. We are using the fruit fly Drosophila as a model system to study the germline stem cells. Germline cells give rise to sperm and egg and are responsible for generating entirely new organism from an early embryo. In particular, we are focusing on the structural and functional characterizations of proteins that determine germline cells and make them different from other types of cells. Using proteomic approaches, we have identified several polypeptides and shown that they associate inside the germline cells and participate in the assembly of large germline organelles (germ granules). Analysis of identified proteins indicate that germline stem cells form dynamic subcellular granules needed for control of protein synthesis, energy production, and protection of germline stem cell DNA from mobile genetic elements.

Caitlin Long – Communication Disorders
Mentor: Kelly Kleinhans
Speech Language Pathologists: Meeting the Communication Needs of a Linguistically Diverse Society
Speech-language -pathologists serve people with communication and swallowing disorders. While speech-language -pathologists are skilled in treating the communicative needs of native English speakers, the demographic changes that have occurred over the last 20 years in the United States have presented new challenges for the profession. To meet the needs of a linguistically diverse society, speech-language- pathologists must understand the issues related to identification of language disorders in bilingual populations. This presentation will highlight changes in the population of the United States, which has resulted in the need for bilingual Speech-Language-Pathologists. The presentation will also use examples from English and Spanish to illustrate the difference between language disorders and language differences and will explain the concepts of language difference and language disorder using examples from English and Spanish.

Jeremy Long – Economics
Mentor: David Eaton
Organic vs. Inorganic Food Production
In this paper I compared organic foods to inorganic foods in the categories of total production efficiency and costs associated with each specific production method. From researching sites like the Index to USDA Agricultural Economic Report and FastPlants.com I'm showing increased returns from technologically advanced acreage in respects to the acreage devoted to organic food production and showing how inorganic food production has a more diverse range of growth potential. Also, from examining the potential growth opportunities in inorganic production, I've experienced greater agricultural opportunites in areas that would have otherwise been unsuitable in traditional agricultural methods. From regression analysis performed on the collected data I've equally represent all areas of my topic and shown how inorganic food, being the marginally efficient choice, is not only a necessity for our growing population but is the most optimal solution for an increasing global society.

Jeremy Long – Economics
Mentor: Maeve McCarthy
Mammalian melanin Modeling Using Reaction-Diffusion Mechanism
In this paper I describe how animals with two-dimensional coat patterning reach melanin equilibrium thus establishing their coat design for the majority of those creature’s lives. Using the reaction-diffusion mechanism to model melanin stability rates and measuring each mammal’s surface area to determine the transfer rate of the pigmentation, I observed which stages during embryonic and adolescent development creatures experienced the most marginally significant changes in coat coloration, when those changes began to diminish and observed when they ceased to occur. By doing so I am able to explain how melanin transfer rates occur and collect in two-dimensional patterning mammals.

Erica Ludtke – Wildlife Biology, Zoological Conservation
Mentor: Howard Whiteman
Raising Environmental Awareness Within White Residential College
As a resident advisor in White Residential College, I have observed first-hand the amount of recyclable material being discarded in the regular trash receptacles. In order to increase the amount of material recycled by the residents and decrease the daily trash output, I attempted to establish a sustainable, resident-led committee within White College to provide recycling education and support. I began by organizing a group of students with the common interest of eliminating environmental ignorance from within the college, in order to form the environmental committee of the Residential College Council (RCC). With the support of the Resident Advisors and RCC, the governing student body, the environmental committee worked to request more recycling receptacles from Facilities Management and relocate existing containers in order to make recycling more convenient for residents. The committee has also held various programs within in the building educating students of the harmful environmental consequences of our current actions. The largest project of the committee thus far, is the sale of eco-friendly, stainless steel water bottles to promote the use of tap water and discourage the purchase of single-use plastic water bottles. Currently, residents throughout the building have welcomed the change with positive attitudes. With the continued efforts of the environmental committee, new recycling ideas will be attempted throughout this semester and next, eventually leading to promote change within the entire residential college community.

Matthew McMain – Political Science
Mentor: Ann Beck
Grading the Presidents: Presidential Failure
The performance of elected officials in the United States is always examined very closely; this is especially true of presidential performance. Many scholars have rated the performance of presidents, and there are many different systems and theories out there for evaluating presidential performance, but is there any consensus among these different scholars? I will examine secondary sources to find information that helps me reach my conclusion. After analyzing the work of different scholars I suspect that there will be consensus among scholars about which presidents have failed.

Jeongsun Moon – Nutrition/Dietetics/Food Management
Mentor: Kathy Timmons
The Acceptability of Tofu as Meat Substitute in Spaghetti Sauce with Meatballs
The purpose of this study is to determine the palatability and overall acceptability of meatballs in spaghetti sauce prepared using tofu as meat replacement. The reason for substituting meat as tofu is because tofu is made of soy beans and soy beans bring variety health benefits such as they provide energy, dietary fiber, proteins, mineral and vitamins required for human health. Also, people can prevent certain diseases by adding fiber in their diet and keep their dietary cholesterol level low because replacement of meat with tofu in a habitual diet is likely to reduce saturated fat and increase the polyunsaturated. Moreover, other studies for cardiovascular disease based on replacement of soy products are in progress. For those reasons, soy product, especially tofu was chosen for substitution of meat in meatballs in spaghetti sauce.

Cy Mott – Biology
Mentor: Howard Whiteman
***To Paed or Not to Paed: Kin Aggression and Developmental Pathways in a Facultatively Paedomorphic Salamander,* Ambystoma talpoideum**
For many amphibian species, reduced aggression among related individuals during larval ontogeny has been identified as a form of kin selection. This phenomenon is hypothesized to increase inclusive fitness for individuals by promoting increased survival to metamorphosis among kin, after which time juveniles typically disperse into surroundings uplands. However, some amphibian species exhibit facultative paedomorphosis, a strategy in which larvae may either metamorphose into terrestrial adults (metamorphs) or remain in ponds permanently as branchiate, reproductively mature adults (paedomorphs). This alternative developmental strategy may have significant consequences for behavioral interactions, such as kin aggression, due to the potentially negative consequences of favoring relatives. If larvae developing into permanently aquatic paedomorphs reduce aggression toward relatives, those relatives may themselves become paedomorphs, essentially becoming lifelong competitors due to limited resources and small sizes of pond habitats. Kin aggression among facultatively paedomorphic species may therefore be dependent on which developmental strategy, metamorphosis or paedomorphosis, an individual exhibits, and whether kin selection occurs at all among such species likely depends on the net cost/benefit of these behaviors among metamorphic and paedomorphic individuals. In examining how kin aggression varies among individuals of divergent developmental strategies, we are monitoring agonistic behavior, growth, injury frequency, and microhabitat selection among larval *Ambystoma talpoideum* through ontogeny among laboratory populations. By following aspects of larval ecology among individual larvae and recording their ultimate developmental fate, we can determine how alternate life history strategies influence behavioral decisions among related individuals.

Hannah Mullis – Organizational Communications
Mentor: Kelley Wezner
All That He Wants
The American Dream: a large house with an expansive yard, nice car, commendable degree, reputable career, spouse waiting at home, children playing games outside, dog in the yard. For many, these are the ideals that not only signify but define success. However, life is not a giant checklist in which to mark off experiences. For some people, these standards are chains binding them from their true ambitions. In Ned Vizzini's It's Kind of a Funny Story, it is not until Craig Gilner discovers that his passion for his artwork is essential to his happiness and that he redefines his view of the American Dream to fit his own needs, that he feels confident in his future. His stay in the hospital and his rediscovery of art allows Craig to understand that he will only achieve happiness once he pursues his own vision of the American Dream. He had become so distracted by the perfect picture of the fabricated American Dream that he did not see the truth, that for him to be successful and happy with his life, he only needs to redirect his life toward his love for art.

Asenath Na'Aman & Chenin Treftz – Dietetics
Mentor: Kathy Timmons
The Development and Evaluation of a Healthful Doughnut Alternative
This experiment was designed to develop an alternative to a doughnut that people could enjoy for breakfast or snacks. The doughnut alternative was made with whole wheat flour and baked so that it would be lower in fat and higher in fiber than a standard doughnut. Taste panelists tested the product to determine acceptability. In addition, objective testing was done to determine moistness and volume. This product could help meet the Dietary Guidelines recommendations for incorporating more whole grain products into the diets of Americans.

Heather Nash & Lindsay Hopkins– Nutrition
Mentor: Kathy Timmons
Dates as a Sugar Substitute in a Cookie
Using ground dates as a sugar substitute in quatities of 25% and 50% to increase the amount of fiber. This makes the cookies healthier for consumers. We will test the acceptability of each cookie using a random panel of consumers who do not know the ingrediants and have no food allergies.

Mary New, Robin Pierce, & Lisa Chandler – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Denise Sikes
Computerized Training Module Increases Nursing Productivity and Confidence
In today's hospital environment, the use of computers in patient charting is becoming a routine activity. Nurses with little or no computer skills are discovering that they are unable to function at an acceptable level and standard to efficiently document client care. With computer technology changing at an expeditious rate, educating and training nurses in technology is critical to increasing nursing confidence, efficiency and competency. Our project consisted of creating a questionnaire to determine the level of competence a nurse feels they are at in regards to certain computer skills. This questionnaire was used to develop a computer based training (CBT) module, for nurses, to educate them on basic computer skills. The technical functions that are listed on the questionnaire serves as a guide for the development of an annual competency. It is our desire that after participating in the CBT, nurses will feel more confident and become more efficient with their computer skills.

Nicole Newton – Physics
Mentor: Arthur Pallone
Solving the Charioteer's Mystery
During the span of the year, data of a variable star has been collected and analyzed, the star being observed, epsilon Aurigae. In general, analyzing data collected from the surface of the Earth is rather difficult due to the effects of the atmosphere. Air affects light coming from stars and planets to observers. Therefore, a mathematical method developed by Dr. Arthur Pallone, a professor here at Murray State, was be applied. His equation quantifies the effects of these variable conditions, such as weather and atmospheric depth, which produces more accurate data analysis. Data was also evaluated using differential aperture photometry (DAP) for variable stars, which is one such technique that analyzes the variation of magnitude (brightness) in stars over time. This magnitude variation provides pertinent information about the physical process of variable stars. After more evaluating of the data, it will be submitted to the American Association of Variable Star Observers (AAVSO) databases. In addition, any analyses of the data will also be submitted to appropriate journals, such as Citizen Sky, for publication.

Abby Noisworthy – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Lynette McKnight
Transforming Care at the Bedside: Hand Off Communication in Nursing
In today's hospital environment hand off communication is a vital part of patient care. In the recent past a guideline has been established for nursing handoff communication. This guideline is known as the SBAR method. The nurse uses this mnemonic to guide the report to the oncoming shift's nurse. The S stands for situation. What brought the patient in? The B stands for background. What do we know about the patient's past? The A stands for assessment. The R stands for recommendations. What can we do for this patient? In order to better serve our patients we are trialing a faxed nursing report rather than a telephone report. It is hoped that this will decrease patient's wait times and increase nursing satisfaction with the report they receive. This uses modern day technology to better an older nursing tradition. I came up with a faxed nursing report form that the emergency department nurses will fill out and fax to the floor. Once the form is faxed the patient can be transported to their admission beds and the nurse will have a copy of the report in hand when she assesses the patient. This process will be trialed for two weeks and then reevaluated to decide its validity.

Bradley Oliver – Chemistry
Mentor: Kevin Revell
Preparation of Oligomers for Use in Organic Photovoltaics
An ongoing synthetic effort into the preparation of oligo(phenylene ethynylene) compounds for evaluation in organic electronic devices, especially organic photovoltaics (OPVs), will be presented. The preparation of oligomers having 2-8 repeating units around a central core are being targeted. The monomers are functionalized with long-chain ester, ketone, and sulfonyl functionalities. The anticipated role of functional groups on HOMO-LUMO levels and the effects of side chain length on solubility and crystal packing will be presented.

Caroline Orr – Economics
Mentor: David Eaton
The Effects of a Ban on Horse Slaughter
Horses have long been an American icon, which is part of the reason their slaughter for human consumption having been banned in 2007. But what unintended economic effects have resulted from the ban of U.S. horse slaughter? How has the ban affected the horse industry? The intent of the slaughter ban was to improve the welfare of horses. Most proponents of the ban were people with a strong passion for horses. Opponents argued that illegalizing slaughter would actually worsen most horses' welfare. By analyzing numbers of abandoned horses before and after the ban, as well as industry prices, I hope to discover whether horse welfare has increased or not.

Linda Overholser & Carolyn Wagoner – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Lynda Owens
Prevention of Skin Breakdown
Statistical results from the February, 2010 quality audit at a local nursing home revealed 110 current residences with 27 residences having a break in their skin. This was an increase of 8 documented cases of skin breakdown since January, 2010. All skilled nursing facilities are governed by Centers for Medicare and Medicaid (CMS) which have standards that must be met. This includes quality of care involving prevention of skin breakdown. Nursing home residents are at a high risk for skin breakdowns without frequent position change, nutritional offerings, and maintaining personal hygiene. Certified Nursing Assistance (CNA) are the front line caregivers for these residence, they are responsible for skin care, positioning, and offering nutritional substances. The purpose of our project is to enhance Certified Nursing Assistances (CNA) knowledge of prevention of skin breakdown. To accomplish our goal we have development a tool to remind the CNA of the importance of turning the residence. Usage of our learning tool will improve the results of the quality audit on skin breakdown over the next six months.

Amanda Paschall & Lauren Bethel – Consumer Nutrition
Mentor: Kathy Timmons
Sensory Effects of Varying Amounts of Flaxseed on a Homemade Pretzel
Omega-3 fatty acids may help reduce the risk of developing several diseases including diabetes, breast and prostate cancer, and heart disease. Flaxseed has been shown to be an excellent dietary source of omega-3 fatty acids. Flaxseeds were added to soft pretzel dough at 3 different levels. Taste panelists tested the pretzels to determine acceptability as compared to a standard soft pretzel. This could be an excellent way to incorporate more omega 3 fatty acids into the diet.

Steven Pardell – Political Science
Mentor: Ann Beck
Forecasting the Future for a Wet Trigg County
This study looks at rural Kentucky counties with population sizes and income levels similar to Trigg County, which became a wet county as of January 1st, 2010. The study will use these counties, looking at their DUI records and local government tax revenue before the counties became wet, the following year, and in the year 2005, in order to obtain both immediate and long-term information to best estimate the effect becoming wet will have on Trigg County. DUI records were chosen as the best estimate for crimes directly related to alcohol consumption, and local tax revenue is used to show if the counties' local governments saw any financial growth as a result of the county going wet. The study will control for population size, as higher population centers tend to have exponentially higher crime rates; and median income levels, as more impoverished regions tend to have more drinking.

Justin Parrish – Agriculture Science, Trent Murdock – Agronomy, & Kyle Overbey – Agribusiness
Mentor: David Ferguson
Evaluation of Dark Fire-Cured and Dark Air-Cured tobacco Varieties
The variety trials at Murray State University are part of a larger tobacco breeding program for the states of Kentucky and Tennessee. The main emphasis of the breeding program is to incorporate disease resistance into new varieties or hybrids and to restore the leaf quality to these new varieties to a level currently found in the older popular disease susceptible varieties. Two experiments will be analyzed to compare differences between tobacco varieties, hybrids or other tobacco genotypes. The first experiment was to compare the dark varieties or hybrids that were fire-cured. The fifteen dark-fired varieties or hybrids were: KT D4, KT D8, DT 538, ms D 2405, NL Madole, PD 319H, ms D 2404, PD 7309, TR Madole, PD 7312, KY 171, VA 309, KT D6, PD 7302 and PD 7318. The second experiment was to compare the dark varieties, hybrids and new genotypes that were air-cured. The genotypes were tested in the air-cured experiment first to eliminate variation in leaf quality sometimes caused by variances in the fire-curing process. The fifteen dark air-cured varieties, hybrids or genotypes were: KT D8, PD 7309, KT D6, ms D 2601, NL Madole, PD 319H, VA 359, Little Crittenden, KY 171, DT 538, PD 7312, KT D4, PD 7302, PD 7318, ms D 2602. For these experiments, the tobacco was transplanted into their respective plots on June 9th and June 10th, 2009. The dark fired-cured and dark air-cured were harvested on October 5th and October 12th, 2009, respectively.

Doug Phelps – German
Mentor: Bartell Berg
Reigen to La Ronde: The Evolution of Sexual Culture in European and American Theatre
The Women's Rights Movement swept across the United States and Europe in the 1970s, but the progression of women's roles in society had already been underway for many years. The rise of the female figure and her role in private encounters in theatre and film represents an evolution in culture, and deserves considerable study. Arthur Schnitzler's play, Reigen (1900), and Max Olphs' film adaptation of Schnitzler's story, La Ronde (1950), invite viewers to question their comfort with sexuality. This inquiry can be reflected back upon society in order to give us an impression of sexual culture, especially concerning women's roles, in their respective time periods.

Robin Phelps – Organizational Communication & Journalism & Mass Communication
Mentor: John Spinda
Facebook Goes to Work: Comparing Supervisors' and Subordinates' Perceptions of Facebook Use
The trend of turning to Facebook when searching for more information about a recent acquaintance, friend or even co-worker is quickly growing across the nation (Stern & Taylor, 2007). Since its inception, Mark Zuckerberg and his team of Developers have enlisted much of the 77 percent of Americans who use the Internet (PewInternet 2009). With 250 million site users 120 million of which who access Facebook daily the conglomeration of Facebook members use more than five billion minutes on the site daily (Facebook 2009). Some post photos and web links, others chat and post comments, and still others engage in these activities at work. This study measures the degree to which supervisors and subordinates alike perceive the use of Facebook in the workplace. This study could not only support the idea of the direct link between job satisfaction and performance, but remove Facebook s oftentimes negative stigma when associated with workplace use. Through calls to those who do not hold management or supervisor positions, as well as those who do, Facebook is the prime means for gathering participants and conducting this study. The survey will produce demographic and quantitative data, which will provide the resources to fulfill this study s goal in addition to allow for future research. In a time when generational gaps are merging, financial situations are declining, and knowledge of computer-mediated communication is vital, this study comes at a juncture of timeliness and relevancy.

Amber Powell & Cathy Simms – RN BSN Nursing
Mentor(s): Marian Smith, Linda Thomas, & Kelly Jenkins
Embracing a Mentoring Culture in the ICU
Many inexperienced nurses are employed on night shift in the intensive care unit at Methodist Hospital. A literature review of over 20 articles revealed a mentoring relationship would increase retention of nurses. A mentoring program was developed using a variety of tools found during the literature review while making the program specific to the institution. Frontline staff were educated in a two hour session during the initiation phase of the mentoring program. The mentees will be educated during orientation to the nursing unit. No new employees have been hired thus far, but the nursing turnover rate is expected to be decreased in the intensive care unit at Methodist Hospital upon implementation and completion of the program.

Tessa Powell – English Literature
Mentor: Kelley Wezner
The 19th Century Novel and Jane Austen
Jane Austen's novels reflect realism and domestic struggles of her era; however, the idea of the novel was quite different during the 18th and 19th centuries than it is today. Throughout her pieces, Austen comments on the purpose and use of the novel according to significant scholars, such as Samuel Johnson, and society. It was believed that novels should reflect virtuous behavior because they were so influential to readers. Writing about improper manners could lead audiences to practice these behaviors, which scholars feared could make them acceptable in society. Austen uses her works to instruct her audience how to accept and read the novel that could potentially be dangerous through the eyes of these scholars. Her narrative voice emerges throughout all of her novels to challenge readers and make them question the actions of her characters and, essentially, themselves.

Amy Krzton-Presson – Water Science Biology
Mentor: Howard Whiteman
Effects of Common Reed Management on Reptile and Amphibian Populations in the Clear Creek Wildlife Management Area
The common reed (*Phragmites australis*) is invading fresh and salt water habitats across the United States. Management of this plant often involves herbicides and its removal has the potential to affect aquatic communities. This project is examining the effects of the chemical treatment of Phragmites on herpetofauna in Clear Creek Wildlife Management Area, KY, utilizing one experimental (treated Phragmites) and two control areas (Phragmites control, non-Phragmites control). Turtles and aquatic amphibians are being trapped and morphometrics are recorded. Turtles are marked to estimate and monitor population sizes and to assess movements between experimental and control areas. Frog calls are being recorded to assess diversity and relative density. Herpetofauna species diversity, biomass, and the status of species of greatest conservation need will be evaluated and the mechanism by which any changes occur will be evaluated. Research and field sampling began in July 2009 and will continue for two years. This research will provide a better understanding of invasive species management and its effects on reptiles and amphibians in aquatic environments.

James Ravellette – Biology
Mentor: Maeve McCarthy
Applied Mathematics and Phylogenetic Tree Construction: The Fitch-Margoliash Algorithm
This presentation analyzes the mathematics behind phylogenetic tree construction in the field of evolutionary biology. Thousands of research studies conducted throughout scientific history have involved the evolutionary changes that occur in various species within the tree of life. However one commonality amongst these studies remains the use of phylogenetic trees as a visual representation of inter-species relationships and the evolutionary changes that occur amongst them. Each species within a phylogenetic tree is represented by a separate branch on the tree. There are different types of phylogenetic trees; the one that will be discussed specifically in this presentation will be the chronogram, which is a phylogenetic tree whose branch lengths are explicit representations of evolutionary time. The primary obstacle when constructing a chronogram is determining the relative branch lengths. This problem can be overcome by using mathematical applications to determine branch lengths. The particular mathematical application used in this presentation is the Fitch-Margoliash Algorithm. The F-M Algorithm is a mathematical process that can be applied to phylogenetic trees in order to determine branch lengths. Essentially this is done by reducing the particular phylogenetic tree down to smaller segments and applying a distance matrix. This presentation will demonstrate how the Fitch-Margoliash Algorithm can be applied to any phyologenetic tree to determine relative branch lengths.

Justin Ray – Economics
Mentor: David Eaton
Economic Impact of CARS
The government issued Car Allowance Rebate System also known as "Cash for Clunkers" imposed in July and August of 2009 has had many different short and long run impacts on our economy. This program specifically had impacts on the supply and demand of used automobiles causing real new and used car prices to increase. By studying both the short and long run quantities of new and used automobiles consumers purchased we can see the increase and decrease in demand, but more important by looking at the new and used car consumer price indexes over the past 15 years, and comparing price regressions from the auto markets, compared to the overall consumer price index changes we are able to see how the shock to used car supply drove used auto prices much higher than other products in the economy. This helps to show just what impact an incentive program can have on other sectors of the economy, such as pollution, car value, and increases in consumer confidence.

Stacey Reason – Art
Mentor(s): Dick Dougherty & Maranda Allbritten
Process Impact: A National Exhibition of Activist Art
This is a presentation about the national art exhibition that I have coordinated. Topics to be discussed will include the process of making art with an activist message, the theme of the exhibition, and how it has impacted the communities it has reached.

Megan Rhodes – Chemistry
Mentor: Bommanna Loganathan
Bisphenol-A Concentrations in Sewage Sludge Samples from a Small Urban Wastewater Treatment Plant
Bisphenol A (2,2-bis(hydroxyphenyl) propane, BPA) is a synthetic organic chemical used in industry and consumer products all over the world. BPA is used in plastic beverage bottles, compact disks, and sports and medical equipment. It is also used for the lining of food and beverage containers. Human exposure to this chemical comes through leaching from plastics into food and liquids. Exposure to BPA is believed to cause major complications in the endocrine systems of many animal species and human populations. Understanding of environmental contamination levels of BPA is essential in order to prevent future contamination and protect wildlife and humans from negative health effects from this chemical. In this study, sewage sludge samples collected from the local wastewater treatment plant during December 2008 to February 2009 were analyzed for BPA concentration using solid phase extraction and enzyme-linked immunosorbent assay (ELISA) techniques. Results revealed that BPA concentrations ranged from 1.58 to 2.39 mg/g dry weight. This study provides evidence that detectable concentrations of BPA are found in sewage sludge from a local wastewater treatment plant.

Chris Robards – Architectural Engineering Technology and Tin Nguyen – Civil Engineering Technology
Mentor: Andrew Kellie
Three Dimensional Modeling of Oil Fields from the Illinois Basin
The purpose of this research is to prepare three dimensional models of multiple oil fields from within the Illinois Basin. Specifically, the work attempts to answer the following questions: (1) What work flow procedures expedite the conversion of paper to digital mapping? (2) What graphical techniques provide realistic display of subsurface features? (3) How can mapping of individual fields be done so as to develop a general understanding of the Illinois Basin?

Ginger Schmidt, Katie Bogard, & Verna Shanstrom – Youth and Nonprofit Leadership
Mentor(s): Roger Weis & Judy Lyle
Great American Smoke Out
The Great American Smoke-Out is a day that is observed every year on the third Thursday of November. The purpose of this day is to encourage tobacco users to quit for the day, in the hope that they will quit for good. It is a day to start a new way of life. This day has been observed on campus for years. We tried to make it more visible this year so everyone would hear about it. The more people that hear about it, the more people we can reach. Our ultimate goal is to make Murray State University a smoke-free campus. Making it smoke-free for a day is a good way to start a smoke-free campus. The day is also to raise awareness about what smoking does to one's health. We figure that some people will quit when they realize how very bad it is for their health. There was an extra promotion, the Adopt-a-Buddy Day. This day was for people to encourage a friend to stop smoking with their help. The Great American Smoke-Out is to promote a cleaner, healthier way of life for the smoker and the bystander.

Lauren Schmidt – Mathematics & Computer Science & Kendra Schroeder – Computer Science (Northern Ohio University)
Mentor: Scott Thede (Depauw University)
Knowledge-Poor Pronominal Resolution
The challenges of teaching a machine to understand a natural language is no trivial task. One sub task of this is the complicated problem of identifying co references, or noun phrases that refer to the same entity in a document. Identifying these co references, especially for the task resolving pronouns to their correct antecedent has been attempted in many previous works over the years. These resolution models commonly use a complex sentence parser that includes a Part-Of-Speech (POS) Tagger and/or a Name Entity Recognizer (NER). The process of building a pronoun resolving system with all of these sub-systems is an arduous task to put together, and not one for the casual developer. We have developed a rule based pronoun resolving system without using any parser, NER, or even a POS tagger. Our knowledge-poor system, while only using three basic grammar rules to determine how to resolve each pronoun performed comparably to similar systems.

Lauren Schmidt – Mathematics & Computer Science & Brooke Phillips – Applied Mathematics
Mentor: Maeve McCarthy
The Mathematics of Indian Drums
We will discuss the mathematics of Indian drums with a focus on the tabla and mridangam. These drums have evolved over many centuries and are the only known drums with harmonic properties, making them in some sense the ideal drums. We will present solutions of the wave equation modeling the vibration of these drums using piecewise densities to model the mridangam drum.

Stefan Schnake – Mathematics
Mentor: Ted Porter
Periodic Points of Differential Operators
The Dynamics of Linear Operators has recently received a great deal of attention. The first to study the dynamics of differential operators may have been MacClane who showed the operation of differentiation to be transitive. Others expanded on the work of MacClane, by showing other more general differential operators are chaotic. While their work demonstrated the density of the set of periodic points of these more general operators, their work did not provide information on what the periodic points may be. This communication attempts to classify the periodic points for a large class of differential operators

Joshua Scott – Agriculture/Agronomy & Scottie Coleman – Agriculture/Agri-business
Mentor(s): Whitney Peake & Tony Brannon
A Comparison of Safety and Effectiveness of Two Insecticides for Dark Tobacco
In cooperation with the University of Kentucky, Murray State University set 32 test plots of dark tobacco June 9 - 10 to determine the effectiveness and safety of two new tobacco insecticides set to enter the market. The tobacco hornworm and budworm can be devastating to tobacco plants if proper measures are not taken for their control. Numerous insecticides are available for their control; however, the search continues to find a safer chemical that will advance protection of the plants. Novaluran, produced by Chemtura, is an insect growth regulator being tested to determine phytotoxicity on the following varieties at different levels: PD 7318LC, NL Madole, and KY 171. A randomized complete block design is used with four replications and four treatments, including an untreated check and Novaluran applied at a rate of 9, 12, and 24 ounces per acre. The first two applications were sprayed at 15 gallons per acre and the last 3 applications were sprayed at 30 gallons per acre. With regards to testing Coragen, randomized complete block design was used again with four replications and four treatments including: Coragen at 3.5 and 5.0 ounces per acre, a local standard of Orthene and Belt, and an untreated control. Two applications were made on July 1 and August 18. Once the tobacco is stripped and weighed, data will determine whether the hypothesis that Coragen provides better insect control, supplies longer persistence, and is safer for the environment and the applicator, can be supported.

Joshua Scott – Agriculture/Agronomy
Mentor(s): David Ferguson, Iin Handayani, & J.D. Mikulcik
Continued Studies of Past Broiler Litter Applications on Soybeans
In 1997, research at the Pullen Farm located in Murray Kentucky was initiated to determine the residual effects of different levels of long-term broiler litter applications on corn and soybeans. In years of corn (1997-2002 and 2008), there were eight long-term treatments that included: 0, 2.2, 4.5, 6.7, 9.0, 11.2, 13.4, and 15.7 Mg/ha of broiler litter applied each year. In 2003 and 2004, corn was grown with reduced rates. From 2005 to 2007, soybeans were grown with no broiler litter applications. However, plots receiving the low historical treatments of 2.2 and 4.5 Mg/ha each year were fertilized with 0.258 Mg/ha of P2O5 and 0.280 Mg/ha of K20 commercial fertilizer. Research in 2005 and 2006 found that soybeans that were grown on the high levels of residual broiler litter yielded significantly better than those that were treated with the commercial fertilizer. In 2007, plant tissue analysis at the R6 stage showed a significant correlation between the soybean uptake of Cu and yield(r=0.4437). This result has led into the current soybean experiments for 2009. For the broiler litter experiment, the same fertilization program was used as in the previous soybean years. Measurements on the broiler litter experiment were continued, similar to past soybean crops. A new experiment was initiated to study Cu fertilization on soybean yield. The three treatments were: 0, 11.2, and 22.4 kg/ha of Cu, applied as CuSO4 to the soil. The results of plant tissue analysis and yield will be reported at completion of the 2009 growing season.

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Monica Seibel – Nutrition, Dietetics, & Food Management
Mentor: Kathy Timmons
Acceptability of Ice Cream Made with Various Lactose Free Milks
This research was to find if a milk alternative (soymilk, rice milk, almond milk, or Kefir) could be an acceptable substitute for cow's milk in ice cream to help reduce the amount of lactose for people with lactose intolerance.

Hannah Shaffer – Spanish with Teaching Certification
Mentor: Susan Drake
El otro lado del ecoturismo
Ecotourism is currently part of the fastest growing industry in the world; as such, it is becoming a venue for expansion and competition in the global market for many emerging countries that previously have lacked the fiscal means to successfully contend with more economically developed countries. Ecotourism involves the creation of business industries in natural environments with high levels of biodiversity and native peoples in hopes attracting foreign investment. Thus, ecotourism directly affects the indigenous persons and the local environment within a given country. This paper seeks to show that ecotourism is not beneficial to the majority of countries that employ it by indicating the harmful consequences of the industry's lack of a reliable definition and by showing ecotourism's negative effect on the native peoples and local environment of host countries.

Kristen Simmonds – Nutrition – Dietetics
Mentor: Nutrition - Dietetics
The Use of Pureed Carrots as a Fat Replacer in Cream Soup
I will have a control group that will use the original recipe, and then from there I will replace the cheese of the broccoli and cheddar soup with 25%, 50%, and 75% pureed carrots. So the volunteer participants will then have a scorecard to rate the four varities of the soup, and then a hedonic scale to rate which one they liked best.

Christian Simon – Criminal Justice
Mentor: Paul Lucko
Traffic in Illegal Weapons: Myths and Realities
Concerns over international terrorism since September 11, 2001 and movies such as Lord of War (2005) have heightened popular interest in the illegal weapons trade. The typical Hollywood depiction of this illicit business concentrates upon the international sale of missiles, tanks, rockets, bombs, depleted uranium shells and other large scale weapons by individuals to terrorists and other criminals. In reality, the world's greatest suppliers of weapons, both legal and illegal, are American, British, French, Russian, and German governments who sell to other governments. Most sales consist of smaller weapons, including rifles, handguns, and grenades. Although international transactions attract the greatest amount of attention, illegal individual weapons sales in the United States are more likely to result in a homicide than a bulk order of international weapons. This presentation will consider the relationship between international and domestic traffic in illegal weapons, discuss some myths and realities, define key terms, and make some policy recommendations designed to regulate or control this activity.

Thomas Simpson – Criminal Justice
Mentor: Paul Lucko
Biker Gangs in Western Kentucky: Organized Crime or an Organization of Criminals or Just Riders?
The public generally views motorcycle riders from a negative, stereotypical perspective. As a result, there are many misconceptions regarding biker gangs. Only a small number of motorcyclists, the so-called "one per centers," and members of "outlaw motorcycle clubs" can accurately be labeled "criminal." Most people ride for pleasure; some motorcycle clubs may in fact correctly be regarded as service organizations that contribute to community charity drives. This presentation examines motorcycle groups and distinguishes criminal organizations from other aggregations that simply consist of individual criminals. Biker gangs based in western Kentucky receive particularly close attention. Internal hierarchical arrangements and the crimes committed by certain gangs or their individual members also receive a close look. The presentation concludes with some suggestions for future policies.

Lacey Sparks – French and History
Mentor: Therese Saint Paul
George Sand: 21st Century Feminist in the 19th Century
George Sand was one of the first modern, liberated women in nineteenth-century France, who wore men's clothes in public and participated in traditionally male activities, such as drinking and smoking. She was a writer by profession and advocated women's right to focus on their own pleasure. The influence of her ideas on later French feminist authors is evident, especially in the works of Simone de Beauvoir. Even though Sand never officially joined the feminist movement of her time, she lived and wrote with a perspective of remarkably modern theories of gender construction and deconstruction. Though these theories were not Sand's, and were not created until the late twentieth century, they provide an ideal framework to analyze Sand as a woman and a writer who lived and wrote ahead of her time. Today, she continues to be a feminist icon of the modern, liberated woman.

Coy St. Clair – Biology
Mentor: Howard Whiteman
Range Extension of* Puma concolor*: Are There Cougars in Western Kentucky
The cougar (*Puma concolor*) once ranged across all of North America. That range is much smaller now, encompassing only the western half of the United States and Canada. Cougars have enjoyed some degree of federal protection since the wholesale slaughter that marked the turn of the century and their numbers have rebounded. With the rebounding population cougars are beginning to move into former ranges further east of their current range. Both scientifically corroborated and uncorroborated sightings and evidence have been found in almost every state between the currently accepted range in Colorado to Missouri. Kentucky itself has reported several uncorroborated sightings. The purpose of this project is to attempt to obtain photographic evidence of cougars in western Kentucky using trail cameras. Three trail cameras were set up in the Murphy's Pond area of western Kentucky in Hickman County. The property is a wetland habitat preserve that is relatively undisturbed, and also acts as a habitat corridor from the Reelfoot Lake preserve in Tennessee. The cameras were baited using cougar urine; trees were "marked" in a 25-30 meter line that transects the cameras' field of vision, with an additional scent sprayed directly in front of the cameras. If cougars are using this habitat corridor they will presumably be attracted to the scent of an interloping cat. Thus far the cameras have only captured common local species including whitetail deer, turkeys and a bobcat. The cameras will remain active until they are taken down at the end of April. Due to the illusive nature of cougars, the chance of capturing photographic evidence is slim. However, because they are so secretive, it is imperative that we actively search for cougars in Kentucky because otherwise we will not know the true extent of their range extension.

Meredith Stevenson – Applied Mathematics
Mentor: Ted Porter
Using Percentage Change as the Universe of Discourse in Fuzzy Time Analysis
One of the main purposes of statistics is to predict future outcomes. A relatively new area of statistics is called fuzzy statistics. Fuzzy statistics can be described as the union of fuzzy logic and traditional statistical methods. Song and Chissom were the first to apply fuzzy logical methods to statistical forecasting, and thus pioneered the field of fuzzy time series analysis. In this presentation we will modify existing fuzzy forecasting methods for prediction and compare our results with the original models. We propose that by using a percent of increase/decrease as the universe of discourse, a more accurate portrayal of the significance of these changes between time periods will emerge. Using Belgian car accident data between 1974 and 2004, provided by Jilani, Burney, and Ardil, we improve upon existing methods.

Meg Stone – Psychology & Sociology
Mentor: James Gedra
Graduate School Gender Conflict
An immense amount of research has been conducted on the harmful effects of work/family conflict, especially involving women trying to work full time and parent full time. It is the assumption that pressures from popular culture would suggest that women should be able to work forty hour weeks but also perform traditional wifely and motherly duties of the household, which most would agree are rather time-consuming activities. Interestingly, however, a very limited amount of research has been done on graduate school/family conflict, which would likely cause many of the same harmful effects. Research has shown that graduate school shares much of the same demands as full time employment, and it could, therefore, be assumed that graduate school/ family conflict could be yet another wave of unforeseeable strife. This paper will look at the anticipated conflict of this issue to determine whether or not female undergraduate students predict a foreseeable conflict between their graduate school and family goals. As the number of women entering graduate school continues to increase, this research is relevant to any undergraduate female considering graduate school.

Robert Stuard – Agriscience & Technology, Josh Miller – Agriscience, & Wes Steele – Agronomy
Mentor(s): Iin Handayani, Tony Brannon, Andy Bailey, & Bobby Hill
The Impact of Various Nitrogen Rates on Dark-Fired & Burley Tobacco
The Impact of Various Nitrogen Rates on Dark-fired & Burley Tobacco
Nitrogen (N) is well known for being the primary nutrient for tobacco growth and production. Therefore, the study of N fertilizer rate effects on dark-fired and burley tobacco yields needs to be performed. The tobacco used in this experiment was transplanted on June 9 and 10, 2009. The varieties were PD7318 dark and TN90 burley. Phosphorus and Potassium were applied prior to transplanting. N fertilizer (34-0-0) was applied on June 15th. The N treatments were as follows: Treatment 1: control plot (no N application), Treatment 2 (100 lbs N/acre), Treatment 3 (200 lbs N/acre), Treatment 4 (300lbs N/acre), and Treatment 5 (400 lbs N/acre). Each treatment has four dark-fired tobacco and four burley tobacco plots. The result shows that there was a significant effect of N application rates on dark-fired tobacco, especially in lugs and yields. In this experiment, burley tobacco was not significantly influenced by N application.

Joe Tarry, Ryan Curry, & Jenna Lake – Occupational Safety & Health
Mentor: David Fender
Parking Lot Light Survey
A survey was performed of lighting levels in selected parking lots on the main campus. At each parking lot, following the Illuminating Engineering Society of North America (IESNA) protocol, light levels were measured at one foot and 28-30 inches above the paving. AT each lot measurements were made in a grid configuration and results were compared to IESNA standards. The resulting information and recommendations for improvement were forwarded to Facilities Management and Public Safety for their information and use.

Leslie Taylor – Dietetics
Mentor: Kathy Timmons
Gluten Free Oatmeal Raisin Cookies
I have conducted an experiment to determine the acceptability of gluten free oatmeal raisin cookies. The purpose of my experiment is to determine which cookie has the bes physical appearance, tast, texture, and many more physical attributes. Many people have gluten allergens and can not eat cookies made with wheat flour. Example being people with celeic disease. I have an experiment that involves and objectice cookie spread test, and two scorecards to be conducted by taste panalists. Differential and hedonic scorecards are being used. The statistics from the outcomes of these tests and score cards will help me determine which of the three cookies are most acceptable for people with gluten allergies.

Nathan Thacker – Nutrition – Dietetics
Mentor: Kathy Timmons
The Use of Beans as a Meat Replacement in Spaghetti Sauce: To determine the acceptability of beans as a suitable replacement for meat in spaghetti sauce.
Using a small panel of 5 to 8 people, samples of the bean sauce will be given to the panel for sampling first. The panel will then grade that product alone to give a fair and un-bias opinion of just the bean sauce. A second test will be done comparing both the bean sauce and the meat sauce. The panel will then grade the two products for overall acceptability. The sauce will be prepared using a standard formula and the only difference will be beans replacing the meat. The process of this experiment will be put on poster board for display.

Gary Thomas, Stanley Revlett, & Kayla Crowdus – Nursing
Mentor(s): Linda Thomas & Brenda Dossett
Development and Implementation of a Post Cardiac Arrest Induced Therapeutic Hypothermia Policy and Procedure
Cardiac arrest outside of the hospital is common and has a poor outcome. Studies have shown that therapeutic hypothermia in post cardiac arrest patients improves neurological outcomes. Effective interventions based upon evidence based research related to post cardiac arrest therapeutic hypothermia (PCAITH) has the potential to decrease patient mortality. The purpose of this project was to develop an emergency department (ED) PCAITH evidenced based protocol along with a policy and procedure that coincides with the current PCAITH intensive care protocol at Methodist Hospital. Developing a PCAITH protocol effects patient safety by improving the quality of care during intradepartmental patient transfers. Staff education regarding the use of this protocol has implications for professional practice. Through education the ED staff will be proficient in recognizing the need for application and execution of this protocol. The utilization of PCAITH protocols improves neurological outcomes in cardiac arrest survivors.

Sarah Thomason – Wildlife/Conservation Biology
Mentor(s): Howard Whiteman and Emily Croteau
***An Evaluation of Microsatellites in* Ambystoma tigrinum nebulosum**
Phenotypic plasticity is the ability of a trait to change in response to an environmental cue. Salamanders are known to exhibit phenotypic plasticity in the form of facultative paedomorphosis, producing a paedomorphic (aquatic) or a metamorphic (terrestrial) body morphology, which provides a unique vertebrate model for understanding the evolution of phenotypic plasticity. Previous research has revealed the mechanisms that produce this polymorphism (i.e. larval body size as an indicator of success); however, little is known about the evolutionary mechanisms that maintain it. As a first step to addressing this question, we are using nuclear markers to assign parentage within a closed population of tiger salamanders located at the Mexican Cut Nature Preserve in Gothic, Colorado. Microsatellites are a tandemly repeated nuclear marker that are ideal for addressing parentage and relatedness because they are highly variable between individuals within the same population and band sharing is conserved between parent-offspring pairs. We optimized a variety of microsatellite primers designed for ambystomatids using PCR and are currently focusing on optimizing *Ambystoma tigrinum* specific microsatellites. Once variable primers have been successfully optimized and scored, relatedness and paternity statistics will be used to design a pedigree. This pedigree will help us better understand the evolution of facultative paedomorphosis, the fitness consequences associated with each morphology, and tiger salamander life history.

Casey Thornton – German
Mentor: Reika Ebert
Comparison of Goethe's Faust and Oscar Wilde's Picture of Dorian Gray
The idea of selling one's soul has existed a long time, and therefore humankind has long pondered the importance and purpose of the soul. Separation from the soul is an oft contemplated religious concept, and for this reason authors have written much literature around this idea. The figure Faust concerns this idea and has become an archetype for future figures of literature whom critics consider Faustian figures, including Dorian Gray, who faces his own separation from his soul. The differences lie in the temptation leading to this separation, and each age has its own Faustian figure with his own individual temptation.

Kristen Tinch – Secondary English Education
Mentor: Meagan Musselman
Trends in Graphic Novel Use Across Kentucky's High Schools
Graphic novels (or in layman's terms "extended comic books") are a genre of literature surrounded by controversy in the world of the high school classroom. Since graphic novels and comic books are closely linked, the advent of the graphic novel in 1978 raised serious questions about the comic book's role in literature are graphic novels simply glorified comic books or do they go beyond the superhero stereotypes associated with the comics of American youth? As graphic novels gain more acceptance as a serious literary form in the public eye, educators throughout the United States are introducing them into school curricula for students of all ages. While curriculum specialists debate their legitimacy as beneficial teaching tools and students snub the genre as mere "kiddy stuff," teachers decide to use graphic novels and/or comic books for at least one of four reasons: (1) to spark the interest of reluctant readers, (2) to supplement previously instructed content, (3) to analyze artistic/visual elements, and/or (4) to explain complicated ideas. This research explores the trends in teachers who are using the graphic novel in Kentucky's secondary English classrooms (e.g. years of experience or grade taught). Furthermore, this research analyzes the graphic novel's place in education as a valid tool for accomplishing learning objectives.

Amanda Turner – English Education / Secondary Certification
Mentor: Kelley Wezner
Rewarding Sisters in Austen Novels
In Pride and Prejudice and Sense and Sensibility, Jane Austen s heroines must overcome multiple, realistic challenges and grow in understanding and moral development. Austen rewards Jane and Elizabeth (Pride and Prejudice) and Elinor and Marianne (Sense and Sensibility) for their successful navigation with suitable marriages. In this way, Austen s novels participate in contemporary patterns of romance and didactic prose. However, Austen simultaneously rewards these two pairs of sisters for their sisterly loyalty by constructing marriages that allow them to live close to each other. The sororal concern operating throughout these two novels correlates with the protagonists' ability to prevail over the novel s conflicts; in fact, interactions between these two pairs of sisters directly influence their subsequent positive changes. An analysis of the practical and historical considerations of distance, travel, visiting, and married life for an early nineteenth-century woman demonstrates that Austen s decision to locate these sisters close together represents a genuine, tangible reward. Austen s choice also comments on contemporary views of happiness and fulfillment and the relative values and importance of various interpersonal relationships.

Kimberly Turner – Spanish Education
Mentor: Neal Messer
La voz de Centroam rica
Rub n Dar o is well known throughout the world as the father of the Modernism movement in Latin America. However, towards the end of his writing career Dar o became more concerned with worldly and political issues than the Modernist writing style of his early years. After his travels to visit and work in Spain, we notice a significant change in his writing. He moves from a style similar to the French Parnassians that is filled with elegance and Romanticism, to themes concerned with Imperialism of the United States, the loss of a Hispanic identity and other topics haunting the Spanish-speaking world. My paper explores how Dar o s work was influenced by his time spent living and working in Spain, especially during the time of the Spanish-American War, and investigates how he used his work to call the attention of the people in the Spanish-speaking world.

Mia Walters – Political Science
Mentor(s): Ann Beck and Martin Battle
In Order to Form a More Perfect European Union: The Road to the European Constitution
The European Union is one of the leading world powers, and its most basic institutions are under the microscope as the Union questions the need for a constitution. The problems that have arisen during this period are those that question the very nature and purpose of the European Union itself, and place this world power in a position of flux until the notion of a constitution is accepted, rejected or amended. This paper shows that the next logical step for the European Union is to accept some form of constitution in order to remain a legitimate, functioning and efficient governmental body. Through an analysis of the treaties developed in the European Union since 1951, and a look at the importance of constitutions at the national level, and a review of literature on the subject, this paper shows that Europe has been moving toward a constitution since its inception. In a final analysis of the Treaty of Lisbon, this paper does assert, however, that such a treaty will suffice to carry the European Union successfully through the 21st century until the governing bodies deem it necessary to revisit the question of a constitution in Europe.

Jessica Weatherford – Organizational Communication
Mentor: Lou Tillson
Adapting to Chinese Culture and Communication Training Manual
It is reported that 20-50% of expatriate assignments fail and the people are sent home. This costs one billion dollars per year. The goal of this project is to develop a training manual for internship participants who are planning to go through MSU to IVT College in Suzhou, China. The training manual will focus on specific cultural differences as well as communication adaptation skills and scenarios. This is in effort to provide better pre-departure training to the students who pursue this internship which will in turn, waste less money and reduce the amount of stress participants feel.

Angie Wheaton - Criminal Justice
Mentor: Paul Lucko
Bible Belt or Death Belt: Religion and Race as Predictors of the Death Penalty in the United States
The United States is one of the few remaining nations that permit the death penalty as punishment for certain crimes. Capital sanctions are most frequently assessed and administered by the criminal justice system in states located in the south. These same states are sometimes known as the "Bible Belt" because of the important role played by Protestant, fundamentalist religion in the region. Because much of the South historically consisted of plantation agriculture and a large African American population, the region has also received the name "Black Belt." The South was also an area characterized by racism and "Jim Crow" segregation. Students of capital punishment sometimes link fundamentalist religion as well as race to a state's willingness to execute offenders. Protestant fundamentalists cite Biblical support for the death penalty. An overwhelming number of individuals on death row are African Americans. This presentation will consider religion and race as predictors of the death penalty in certain southern states and determine which factor is the most important determinant of the death penalty. Does the South support the death penalty primarily because of race?

Francis Whitfill – German & Spanish
Mentor: Neal Messer
Justifying What Cannot Be Justified: A Look at Colonial Justification Mechanisms
When a human being lies dying on the ground, one does not feel the impulse to run a blade through him. However, under the right circumstances, individuals manage to justify such actions to themselves and to their nation. In today's world, such actions seem inhumane and unimaginable, but do they still occur? My work examines justification mechanisms in the context of the Spanish and German empires. By using two different empires whose colonization occurred in two different centuries, the evidence for these mechanisms: arguments of Realpolitik, dehumanization, and nationalism, will become apparent.

Jessica Whitaker – Biology
Mentor: Maeve McCarthy
Epidemiology Compartment Modeling: An Overview
In the past epidemics have been unpredictable and devastating but through modeling we can better predict how diseases can spread and what provisions we need to take in order to decrease the severity of an epidemic. The more we know about disease the more deaths can be prevented. Modeling allows us to have a visual representation behind the mathematics. The simplest type of compartment model is the SIR model which stands for Susceptible, Infectious, and Recovered. The SIR model can be used to describe diseases such as chicken pox but to explain more complex diseases compartments and additional equations are added. One such additional compartment is called an immunity compartment. Immunity compartments show when individuals are immune to a disease such as when a population is vaccinated. Some diseases such as cholera require multiple compartments because of their complexity. For instance when individuals recover from cholera they get a short-term immunity which is shown with additional compartments and equations. Other compartments are also required to show the two different severities of infection. Through use of differential equations and modeling we can better predict how cholera can be reduced in populations. Some examples of how cholera could be reduced include vaccination, sanitation, and medications.

Callie Wilson – Biology
Mentor: Maeve McCarthy
Crick, Griffith, and Orgel's Comma-Free Genetic Code: A Step Towards Unlocking the Genetic Code
The Genetic Code has been a topic of interest for less than 100 years, yet so much has been discovered. Attempts were made to determine the process in which the genetic code is read to produce proteins. F.H.C Crick, J.S. Griffith, and L.E. Orgel s idea of comma-free coding was one of the many hypotheses that circulated the topic and pushed later scientists to crack the genetic code. They suggested, as others had, that the four nucleotide bases were read in groups of three, known as codons. Their main premise was that a strand of DNA was comma-free, or there were no spaces or indicators between codons. They assumed that sense and nonsense codons must exist: the sequence of sense codons would be the only correct way to read the DNA strand, and beginning the sequence at an incorrect nucleotide base would lead to nonsense codons. All possible codons were placed into three groups, which were permutations of each other. One of the groups represented twenty sense codons and the other two consisted of nonsense codons. They also claimed that an adaptor molecule served as an intermediate between the RNA copy of DNA (messenger RNA) and amino acids. This molecule exists and is known as transfer RNA.

Ashley Winkler – Spanish & Chemistry
Mentor: Leon Bodevin
Lorca's Literary Use of Symbolism in Yerma
The literary use of symbolism has been an integral part in writings for centuries. The works of Federico Garcia Lorca were saturated with such symbolism and imagery. Lorca utilized strong images and contrasts within nature to call attention to social dilemmas of his era. Lorca wrote a trilogy of plays which he called rural tragedies that specifically highlighted to the abuses and suffocation felt by Spanish women. Yerma was the second of the three and was written with little more than a skeleton of a plot. The play was written in the tradition of the Greek tragedy as a concentrated character study and the extensive use of symbolism as the mechanism to convey his social message. Lorca's work was important to the era and presented a strong message to its audiences. This essay explores the symbolism in Federico Garcia Lorca's rural tragedy Yerma and unlocks its value contextually to the social conditions of his era.

Brad Wooten – Psychology
Mentor: James Gedra
Government Medical Care Space
With the election of Barack Obama as president, and a summer filled with protests against health care and other government programs, political involvement appears to be on the rise. This study was conducted to better understand the extent of college student involvement in the political process. College students were given a packet of questions regarding their locus of control, political participation, preferred amount of federal government involvement in a person's life (from libertarian to totalitarian), and political goals. It was predicted that locus of control and preferred amount of federal involvement influenced their political views regarding government run health care, and the United States space program. The findings suggest that college students who are against government run health care are more likely to have and internal locus of control, be more active in their opposition, and have a more libertarian political orientation. Students that were against government run health care were not opposed to the United States space program, suggesting that this group is not opposed to all large federal programs. College students with an external locus of control were more likely to be for a government run health care system.

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