College of Humanities and Fine Arts • College of Science, Engineering, and Technology • School of Agriculture • College of Business and Public Affairs • College of Education • College of Health Sciences and Human Services •

Murray State University

Scholars Week

A Celebration of Student Research, Scholarship, and Creative Work

April 21-25, 2008

7th Annual

Scholars Week

Program and Abstracts

Table of Contents

Welcome Messages 02

- Dr. Randy Dunn, President
- Dr. Gary Brockway, Provost and Vice-President for Academic Affairs
- Dr. Tim Todd, Dean, College of Business and Public Affairs
- Dr. Russ Wall, Dean, College of Education
- Dr. Ted Brown, Dean, College of Humanities and Fine Arts
- Dr. Corky Broughton, Interim Dean, College of Health Science and Human Services
- Dr. Bob Pervine, Interim Dean, College of Science, Engineering and Technology
- Dr. Tony Brannon, Dean, School of Agriculture
- Mr. Adam Murray, Interim Dean, University Libraries
- Undergraduate Research and Scholarly Activity Advisory Board & Staff

Program

- Monday, April 21 10
- Tuesday, April 22 13
- Wednesday, April 23 14
- Thursday, April 24 22
- Friday, April 25 23

Other Scholarly Events in April 24

Special Recognition 30

Abstract 31

Welcome to *Scholars Week* 2008. This year marks the seventh anniversary of Murray State University's *Scholars Week* celebration and is an achievement of which we can all be proud.

This academic year has again been a very productive one for our undergraduate and graduate students as well as our faculty. In February, Murray State undergraduate students joined students from Kentucky's seven other public institutions in *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 undergraduates at Murray State have received financial support for faculty-mentored projects through the URSA Grant Program. The fourth edition of *Chrysalis: The Murray State University Journal of Undergraduate Research* has been published, featuring the scholarly endeavors of students throughout the university. Again this year, Research Scholar Fellowships were available and four were awarded to undergraduates in a very competitive review that included more than twenty-five proposals.

In February, URSA and the Center for Service Learning and Civic Engagement coordinated a new event for Murray State called the Engagement Conference. The conference enabled Murray State faculty to exchange ideas with faculty from across the U.S. on ways to further engage undergraduates in faculty-mentored research, scholarly and creative work.

Our academic year culminates in *Scholars Week*, the annual celebration that recognizes the creative and scholarly work of hundreds of Murray State's undergraduate and graduate students.

I encourage you to attend as many of this year's *Scholars Week* oral and poster presentation sessions, performances and exhibits as possible.

I am grateful to you, our students and faculty, for making this another outstanding year of scholarly accomplishments at Murray State University.

Dr. Randy J. Dunn
President, Murray State University

Welcome to the 7th 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. I have been extremely pleased to watch this program grow over the seven-year period from approximately 200 students the first year to over 1000 students now. 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 seven 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, 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 Dr. John Mateja in the Undergraduate Research and Scholarly Activity Office. 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, Kentucky's Public Ivy University and a leading comprehensive university in the nation.

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

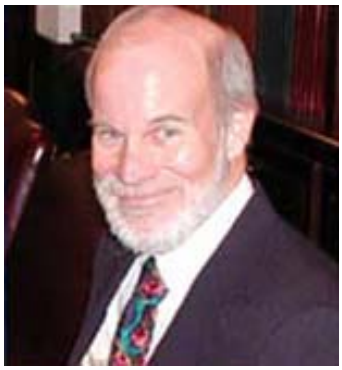
Scholars Week is a rewarding and exciting event for the College of Education and Murray State University. During the year we celebrate student contributions and achievements in many domains but during *Scholars Week* the academic work and achievement is displayed by our most accomplished students. The 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

~~~~~~



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
~~~~~~

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
Interim Dean, College of Health Sciences and Human Services

~~~~~~

The primary goal of Murray State University's faculty and staff is to "foster student-centered learning and development." Central to the mission statement of Murray State is a strong commitment to recruit and retain highly credentialed professionals, deeply involved in the intellectual development of students. During MSU *Scholars Week*, we celebrate the research, scholarship, and creative accomplishments of our students – testimony of the strength and dedication of students and faculty toward the enterprise of learning. May we see in this week an image of an even greater commitment to a lifetime of scholarly contribution to society.

Dr. Bob Pervine
Interim Dean, College of Science, Engineering, and Technology
~~~~~~

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 personal and professional growth. 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

~~~~~~

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 witness 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
Interim Dean, University Libraries
~~~~~~

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 seventh annual *Scholars Week* celebration. We are pleased that over the past seven 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!

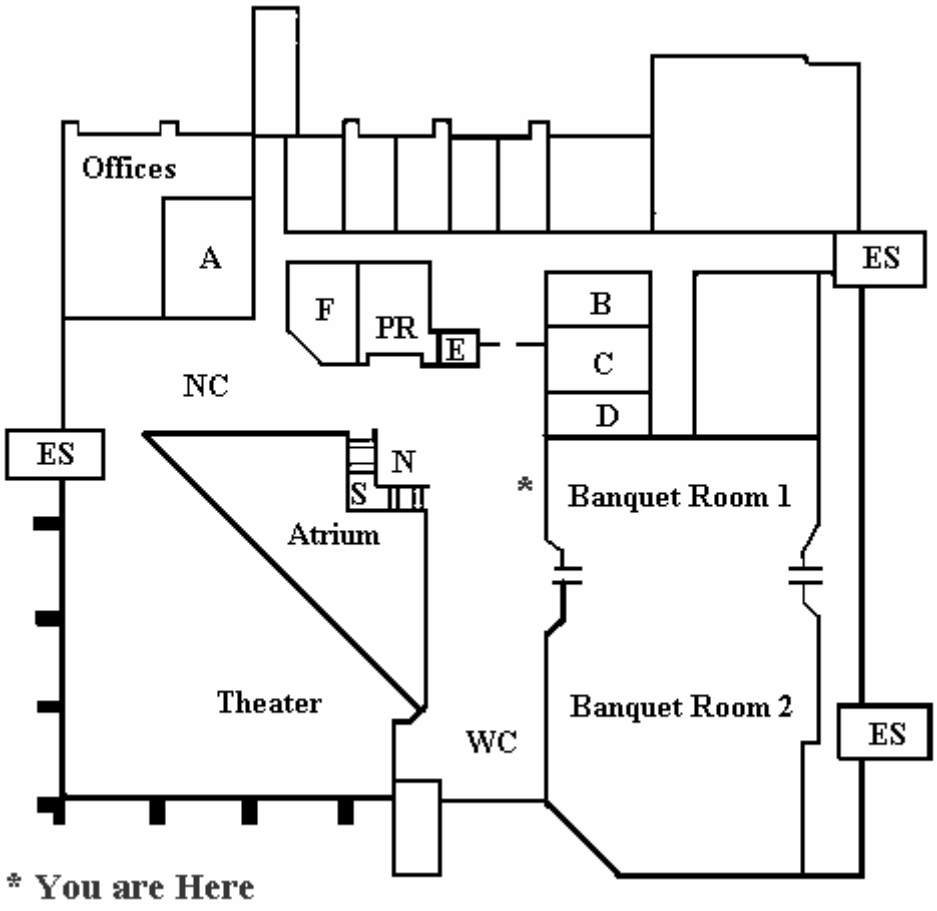
Advisory Board and Staff:

Dr. Terry Derting Biological Science	**Dr. Tracey Wortham** Occupational Safety and Health	**Dr. Zbynek Smetana** Art
Dr. Dwight "Doc" Holliday 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. Nancey France** Nursing	**Dr. Harry Fannin** Chemistry
Mr. Brad MacDonald Library	**Dr. John Mateja** URSA	**Mr. Jody Cofer** URSA

Murray State University

Scholars Week

April 21 - 25, 2008



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 21, 2008

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*

Leah Blackketter – Chemistry **
Determination of Selected Inorganic Anions as an Indicator of Ground Water Quality in Hickman County, KY

Kelly Brannon – Agriculture Business & Economics *
Switchgrass: A Drive Force in Tomorrow's Fuel

Zachary Brian, Courtney Harris, Kelly Harris, & Rachel Harris – Biology *
Invasion Study: Testing the Roles of Taxonomic Affinity and Species Origin in Intentional Plant Introductions using Nursery Data in Kentucky

Zachary Brian, Courtney Harris, & Kelly Harris – Biology *
Morphological Plasticity: A Comparative Study of Leaf Traits Between Exotic Honeysuckle (Lonicera japonica) *and Its Native Congener* (Lonicera sempervirens)

Jake Elliott – Mathematics *
A GIS Model of Lyme Disease Risk in Kentucky

Zac Elmore, Adam Duley, Mikel Headford, Christopher Muncie, & Nathaniel Phelps – Biology *
Immunocytochemical Distribution of H-K-ATPase Beta-subunit in the Hyperglycemic Mice

Broadus Fitzhugh – Chemistry, Pre-Pharmacy *
Synthesis and Electro-Optical Characterization of Conjugated Oligomers for Use in Organic Solar Cells

Annette Fowler – Chemistry *
Trace Level Analysis of Polybrominated Diphenyl Ethers in Fish Tissue Extracts Using a Gas Chromatograph-Electron Capture Detector

Stephanie Galla – Wildlife Biology *
Taxonomic Status of Large-leaf Mulberry in Western Kentucky

Rebecca Gardner – Geosciences **
Accessing Forest Health and Vegetation Cover in the Adirondack State Park with Remote Sensing

Desirae Holloway – Psychology *
Perceptions of Self and Friends

Andrew Johnson – Chemistry *
Synthesis of 2-Aminopyrimidines as Probes of Bacterial Resistance

Kristen Landolt – Water Science **
Morphological and Behavioral Responses to Predator Presence in Ambystoma talpoideum

Shannon McGregor – Integrated Studies, Archaeology *
Microartifact Analysis of Mississippian House Floors

Eric Morris – Geosciences **
Improving Land-Use / Land Cover Classification Accuracy with Shadow Removal

Holly Mowery – Chemistry & Biology *
Pharmaceutical and Illicit Drug Levels in Murray Wastewater Treatment Plant Samples

Justin Parrish, Isaiah Story, & Robert Stuard – Agricultural Science *
Comparison of Residual Herbicide Programs for Dark Tobacco 2007

Ryan Parrish – Geosciences **
Chert Sourcing Investigations of the Lower Tennessee and Cumberland River Valleys Using Visible/Near-Infrared Reflectance Spectroscopy

Brian Robertson – Chemistry, Finance, & Mathematics *
Diagnosing Retirement

Todd Schoberg – Biology & Ashley Hagan – Computer Science and Mathematics *
Microsatellite Analysis of a Polymorphic Population of Tiger Salamanders, Ambystoma tigrinum nebulosum

Brendan J. Shannon – Chemistry *
Multipodal Anion Complexation by Gramicidin-mimetic Cyclic Decapeptides: Evaluation by in silico *Screening*

Herbert Earl Sharp – Agronomy **
Analysis of the Ratio Vegetation Index (RVI), the Normalized Difference Vegetation Index (NDVI), the Green Normalized Difference Vegetation Index (NDVIg), and the Infrared Percent

Courtney Snapp – Biology, Water Science **
Diatom Species Assemblages and Community Dynamics in Four Springs of Differing Geologic Origin, Land-Between-the-Lakes, Western KY and TN

Matt Upchurch – Agronomy **
Residual Effects of Broiler Litter on Soybean Productivity

Oral Sessions

Economics Session

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

Heidi Van Ameringen – Economics
Closing the Gender Gap: A Focus on Women's Equality in Education

David Barkley Carr, Jr. – Economics
What is the Economic Impact of Pirated Movies?

Kevin Batts – Economics
Ethanol: Falling Gas Prices, Falling Economy

Robert Holland – Economics
Reality Killed the Video Star

Chris Horton – Economics
Effects of Cigarette Taxes on Consumption

Elizabeth Thornhill – Economics
Technology: Providing Information to Assist in Price Discrimination

Cody Wiles – Economics
Outsourcing of America

Social Research Session

Ohio Room, Curris Center
Session Chair: Dr. Paul Lucko
1:30 p.m. – 3:00 p.m.

Molly Able & Kerri Anderson – Criminal Justice
Our Problem: The Organized Slave Trade in the United States

Christopher Austin – Mathematics
Religious Dimensions as Predictors of Anti-Muslim Attitudes

Mandy Brandsasse – Sociology
Desperation and Greed: The Organized Crime of Body Organ Sales

Daniel Davis – Sociology
Lords of War: The Organized Illegal International Arms Trade

Ryan Leach – Psychology
Changes in Alcohol Perceptions Based on Current Usage

Toby Pirkle – Criminal Justice
The Art of Cockfighting: An Organized Criminal Enterprise

Agriculture Soil Studies Session

Mississippi Room, Curris Center
Session Chair: Dr. Pat Williams
1:30 p.m. – 2:00 p.m.

Dean Abner – Agriculture
Soil Density, Soil Porosity, and Aggregate Size Distribution Following Chicken Litter Applications in Cultivated Fields

Robert Tokosh – Agriculture
Assessing Soil Organiz Matter Pools Under Different Grass Species

BioMaps Mini-Symposium

Barkley Room, Curris Center
Session Chair: Dr. Renee Fister
3:30 p.m. – 5:00 p.m.

Taylor Clements – Mathematics
Boundaries of Complex Polynomials and Their Roots

Todd Schoborg – Biology, & Ashley Hagan – Computer Science & Mathematics
Microsatellite Analysis of a Polymorphic Population of Tiger Salamanders, Ambystoma tigrinum nebulosum

Sarah Thomason – Biology & Michael Whitby – Math
An Analysis of the Escherichia coli Growth Model

Mary (Molly) Williams – Mathematics
Annihilating Cancer Cells at a Minimal Cost for a Model with a Delay

Performance

Lovett Auditorium
8:00 p.m.

Symphony Orchestra Concert

Conductor: Mr. Dennis L. Johnson

Jessica Arnold
Jennifer Bandle
Anna Bartsokas
Anna Brown
Devan Caton
Da ye Choi
Mary Grace Choukalas
Taylor Clements
Whitney Coyle
James-Kyle Damron
Cassie Fischer-Flaherty
Marilyn Freezor
Lance Fulks
Brad Hammack
Todd Hill
Sarah Horn
Tim Hutchens
Stephen Incata
Robert Lamberg
Sara Lee
Autumn Lowe
Shane Melvin
Andrew Miller
Natalie Miller
Cory Mullins
Sue-Jean Park
Nikki Pierceall
Holly Pritchard
Megan Richter
T.J. Robinson
Daniel Runnels
Anne Marie Spenns
Kathryn Stalls
Samantha Stanley
J.C. Stuart
Rachel Tarry
Robin Thweatt
Sam Trevathan
Gracie Wallace
Ryan Wilkerson
Emily Wuchner
Laura Young
Mary Y-Pettit

Tuesday, April 22, 2008

Oral Sessions

Ecological Consequences of Alternative Energy Sources

Barkley Room, Curris Center
Session Chair: Dr. Howard Whiteman
12:30 p.m. – 1:20 p.m.
(Attendees are welcome to bring lunch to this panel.)

Panelists include:

Dr. Claire Fuller
Dr. David White
Dr. Howard Whiteman
Mr. Andrew Wiggins
Ms. Emily Pollem
Ms. Catherine Aubee

Modern Language Senior Colloquium

Barkley Room, Curris Center
Session Chair: Dr. Meg Brown
2:00 p.m. – 5:00 p.m.
(listed in order of presentation)

Theresa Luebbers – Music Education
Keeping Up With the Joneses: A Look Into Inarritu's Film "Babel"

Chelsie Taylor – French
The Rise of Feminism through African Cinema

Laurie LeCompte – German and Mathematics
A Comparison of Franz Kakfa's The Metamorphosis *and Gunter Grass'* The Tin Drum

Sarah Ramage – Spanish and German
Student Movements in Mexico and Germany in 1968

Amy Scarbrough – Spanish Education
The Life of Lazarillo: A Criticism of the Mentality of the Golden Age of Literature

Tia Lynn Beltz – Spanish
The Political and Social Analysis of Love in the Time of Cholera

Alana Seaborg – Spanish
*Desire, Communication, and the Supernatural in Laura Esquivel's "*Tan veloz como el deseo*"*

Kirby Watts – Spanish
Defenses of the Origins and Practice of Slavery in Colonial Latin America and the West Indies

Zachary Smith – International Affairs & Spanish
Capitalism at Any Cost: U.S. Involvement in Chile

Warren Robinson – Journalism and Spanish
Chavez's Venezuela

Dan Runnels – Spanish
U.S. Foreign Policy Towards Cuba: The Time to Change

Liberal Arts Symposium
Ohio Room, Curris Center
Session Chair: Dr. Barbara Cobb
3:00 p.m. – 4:00 p.m.

Eden Davis – Liberal Arts
Telling the Whole Truth: The Necessities of Writing the Body and the Rediscovery of the Feminine

Amanda Enochs – Liberal Arts
Climate Change and Its Impact on Global Resources

Meagan Hensely – Liberal Arts
The History of Wrather Museum

Amanda Ralston – Liberal Arts
A Sociological Evaluation of F. Scott Fitzgerald's "The Great Gatsby"

Awards Recognition Reception
Faculty Club
4:00 p.m. – 5:30 p.m.

Dr. Howard Whiteman, Professor of Biological Sciences, 2008 Recipient of the University Distinguished Mentor Award

Dr. Robin Zhang, Assistant Professor of Geosciences, 2008 Recipient of the University Emerging Scholar Award

Mr. Squire Babcock, Associate Professor of English and Philosophy, 2008 Recipient of the CISR Presidential Research Fellowship

Sigma Xi Banquet
Large Ballroom
6:30 p.m. – 8:30 p.m.

Wednesday, April 23, 2008

Poster Session

General 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*

Scott Adair – Marketing
Kentucky State Parks: Public, Private, or Both

Jonathan Alexander, Derrick Bradshaw, Adam Campbell, Eric Dunsford, James Erwin, David Field, January Futrell, Randi Gilstrap, Jason Goodrum, John Gorey, Jacob Hagen, Andria Kroner, Dustin Lawson, James, Mayes, Andrea Merimee, Emily Pollom, Kelsea Reagan, Billy Riden, Daniel Rouse, Robert Schaefer, Herbert Sharp, Michael Sieg, David Stepp, Jessica Tapp, James Washburn, Kyra Williams, & Jeremy Wynn – Geosciences ***
Murray: Cycling into the Future – A Blueprint for Bicycle Path Implementation

Yvonne Anderson, Whitney Ray, & Megan Miller – American Humanics ***
Halloween Extravaganza

Chris Ark, Lauren Elkins, & Whitney Kelsey – American Humanics ***
F.A.C.T.

Christopher Austin – Mathematics
Religious Prejudice
Jonathan Baldridge – Psychology
Superiority Bias: Fact or Fiction?

Leah Blackketter – Chemistry **
Determination of Selected Inorganic Anions as an Indicator of Ground Water Quality in Hickman County, KY

Kristin Boom, Angela Owens, & Melissa Clapp – American Humanics ***
Angel's Awareness

Kelly Brannon – Agriculture Business & Economics **
Switchgrass: A Drive Force in Tomorrow's Fuel

Zachary Brian, Courtney Harris, Kelly Harris, & Rachel Harris – Biology **
Invasion Study: Testing the Roles of Taxonomic Affinity and Species Origin in Intentional Plant Introductions using Nursery Data in Kentucky

Zachary Brian, Courtney Harris, & Kelly Harris – Biology **
Morphological Plasticity: A Comparative Study of Leaf Traits Between Exotic Honeysuckle (Lonicera japonica) *and Its Native Congener* (Lonicera sempervirens)

Cindy Brown – American Humanics ***
Video Diary

Misty Brown & Adam Elias – American Humanics ***
Job Scout

Christa Bugg & Megan Jackson – American Humanics ***
The Hygiene Drive

Aimee Bullock & Sherri Todd – American Humanics ***
MCC Student Affairs

Aimee Byassee – American Humanics ***
Grandparents for a Day

Jamiamah Campbell & Brittany Leslie – American Humanics ***
Oshkosh Placement Exchange

Tyler Clark – Biomedical Sciences
The Use of Real-Time Polymerase Chain Reaction Allows for Quantification of Developmental Gene Expression

James Copeland – Telecommunications Systems Management
Real Time Network Traffic Capture and Analysis on a Public University Network

Courtney Crain, Patrick Wallace, & Clay Brigance – American Humanics ***
The Pure Water Program

Matt Dennis – Biology, Zoological Conservation
Effects of Water Pollution on the Encapsulation Ability of Dragonfly, Plathemis lydia

Carrie Elliott, Teresa Ferguson, Daniel Hayden, & David Crouch – Agricultural Education
Dark Fired Tobacco Responses to Different Nitrogen Fertilizers

Jake Elliott – Mathematics **
A GIS Model of Lyme Disease Risk in Kentucky

Zac Elmore, Adam Duley, Mikel Headford, Christopher Muncie, & Nathaniel Phelps – Biology **
Immunocytochemical Distribution of H-K-ATPase Beta-subunit in the Hyperglycemic Mice

Rebecca Feldhaus – Music
Marian Anderson: A Voice for the Seemingly Silent

Ashley Evans, Eric Gibbs, & Cristin Laird – American Humanics ***
Reading Rewards Ceremony

Broadus Fitzhugh – Chemistry, Pre-Pharmacy **
Synthesis and Electro-Optical Characterization of Conjugated Oligomers for Use in Organic Solar Cells

Brittany Fiscus – History
Queen Marie Antoinette's Pre-Revolutionary Image: A Product of Media Fabrication and Personal Flaws

Annette Fowler – Chemistry **
Trace Level Analysis of Polybrominated Diphenyl Ethers in Fish Tissue Extracts Using a Gas Chromatograph-Electron Capture Detector

Stephanie Galla – Wildlife Biology **
Taxonomic Status of Large-leaf Mulberry in Western Kentucky

Rebecca Gardner – Geosciences **
Accessing Forest Health and Vegetation Cover in the Adirondack State Park with Remote Sensing

Nicole Allyn Hayek – Art
The Wolf's Grim Reaper

Marshall Healy & Terrence Biggers – American Humanics ***
Masters of Disaster

Desirae Holloway – Psychology **
Perceptions of Self and Friends

Jamie Houston – Middle School Education & Logan Smith – Elementary Education
Birds and Campus Windows

Christina Jackson, Andrew Mattmiller, Derek Nance, Keely Netz, and Kevin Witbrodt – Biology and Chemistry
Genetic Analysis of Germline Development and Nuclear Division in the Fruit Fly Drosophila

Matt Jacobs – American Humanics ***
Jefferson Lady Bobcats

Andrew Johnson – Chemistry **
Synthesis of 2-Aminopyrimidines as Probes of Bacterial Resistance

Kristen Landolt – Water Science **
Morphological and Behavioral Responses to Predator Presence in Ambystoma talpoideum

Carrie Lardner – Sociology, Erica Thweatt, & Bre Sykes – Organizational Communication
Pets are People Too!

Ryan Leach – Psychology
Social Norming vs. Personal Alcohol Consumption

Kara Mantooth, Lauren Hohman, & Martha Mary Scherer – American Humanics ***
Scavenger Hunt for Need Line

Shannon McGregor – Integrated Studies, Archeology **
Microartifact Analysis of Mississippian House Floors

Sarah McHugh – Theatre and Dance
"Tooth and Nail"

Shannon McGregor – Integrated Studies, Archeology **
Microartifact Analysis of Mississippian House Floors

Eric Morris – Geosciences **
Improving Land-Use / Land Cover Classification Accuracy with Shadow/ Removal

Stephanie Morris, Laura Welborn, & Koji Farrington – American Humanics ***
Make a Difference Through Mentoring

Holly Mowery – Chemistry & Biology **
Pharmaceutical and Illicit Drug Levels in Murray Wastewater Treatment Plant Samples

Christie Nelson, Candra Barnett, & Denise Perdue – American Humanics ***
Enlighten

Justin Parrish, Isaiah Story, & Robert Stuard – Agricultural Science **
Comparison of Residual Herbicide Programs for Dark Tobacco 2007

Ryan Parrish – Geosciences **
Chert Sourcing Investigations of the Lower Tennessee and Cumberland River Valleys Using Visible/Near-Infrared Reflectance Spectroscopy

Chris Peters & Aimee Flener – Education
One More for the Road

Cathy Pinnegar – Human Development and Leadership, Jordan Wilkins, & Bret Massey – Integrated Studies
Reading for the Ages

Kelsey Quade – Psychology
Factors Affecting Menu Choices

Kendrick Quisenberry, Kathe Payne-Boget, & Andrew Scott – American Humanics ***
Penny Wars for Big Brothers, Big Sisters

Tara Radtke – Elementary Education
Loris Alert
Rebecca Riggs, Carrie Gottschalk, & Leonard Matlock – American Humanics ***
Pet University

Brian Robertson – Chemistry, Finance, & Mathematics **
Diagnosing Retirement

Herbert Earl Sharp – Agronomy **
Analysis of the Ratio Vegetation Index (RVI), the Normalized Difference Vegetation Index (NDVI), the Green Normalized Difference Vegetation Index (NDVIg), and the Infrared Percent

Todd Schoberg – Biology & Ashley Hagan – Computer Science and Mathematics **
Microsatellite Analysis of a Polymorphic Population of Tiger Salamanders, Ambystoma tigrinum nebulosum

Brendan J. Shannon – Chemistry **
Multipodal Anion Complexation by Gramicidin-mimetic Cyclic Decapeptides: Evaluation by in silico *Screening*

Courtney Snapp – Biology, Water Science **
Diatom Species Assemblages and Community Dynamics in Four Springs of Differing Geologic Origin, Land-Between-the-Lakes, Western KY and TN

Alan Strong & Eric Chumbler – American Humanics ***
Saturate

Heather Stroupe – Psychology
Reality Check: You Don't Always Get What You Expect

Jennifer Tucker – Psychology
Relationship of Caregiving to Adolescent Behavior

Matt Upchurch – Agronomy **
Residual Effects of Broiler Litter on Soybean Productivity

Jessica Wright & Sandy Shortt – Biology
LBL Road Kill Survey

Warren Van Wyck – Biology/Secondary Education
Threatened and Endangered Animals in Kentucky

Todd Walker – Biology
Control of Termites by the Fungal Exposure

Stephanie Weaver & Sara Settler – Elementary Education
The Correlation Between Animal Mortality and Speed Limits

Danielle Williams, Jessica Stinton, Julie Musko, Jessica DeGreve, Brittany Prevallet, & Marybeth Ewing – Communication Disorders ***
Glendale Place FaBOOlous Halloween Bash

Troy Williams – American Humanics ***
World Aids Day

President's *Scholars Week* Luncheon

Large Ballroom, Curris Center
Moderator: Dr. Bonnie Higginson
11:30 a.m. – 1:00 p.m.

Welcome:
Associate Provost Bonnie Higginson

Demonstration by the
MSU Percussion Ensemble
Director: Dr. John Hill

Performing:

The Submarine Express

Ionisation

Hello Young Lovers

Jake Bradley	Eric Riggs
Jessica Darnell	Stacey Rotterman
Paul Davis	Becca Thompson*
Andy Howell	Sam Trevathan*
Robert Lamberg	Jill Wallis
Brandon McKnight	Ryan Wilkerson*
Shane Melvin	Nick Wright
Kyle Payton	

* Demonstration Speakers

Recognition of:

1. MSU Alumni Association's Distinguished Researcher Award Recipient
2. MSU Emerging Scholar Award Recipient
3. MSU Distinguished Mentor Award Recipient
4. URSA Research Scholar Fellowship Recipients

MSU Alumni Association Distinguished Researcher Award Colloquium

Curris Center Theater, Curris Center
Session Chair: Dr. Ramesh Gupta
1:30 p.m. – 2:30 p.m.

Dr. Bommanna Loganathan, Associate Professor in the College of Science, Engineering, and Technology and 2007-2008 Distinguished Researcher Recipient

Global Environmental Contamination by Persistent Chemicals: Temporal Trends and Effects on Wildlife and Humans

Oral Sessions

College of Education: Student Teacher Eligibility Portfolios

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

Vanessa Andrews – Elementary Education

Heather Austill – Middle School Education

Meghan DesPain - IECE

Katherine Drennon – Biology & Chemistry

Kaci Long – Elementary Education

Chelsea Vandiver – Spanish

Globalization, Culture, and Sustainability: Studies of Clashing Ideologies

Ohio Room, Curris Center
Session Chair: Dr. Mike Basile
1:30 p.m. – 3:30 p.m.

Olivia Baggett – International Affairs
Forces of the Past on the Present: US-Iranian Relations

Tia Beltz – Spanish
The Effects of NAFTA on the Economies of the United States and Mexico: A Study of Illegal Immigration

Brianna Bland – Spanish
Illicit Globalization

Andrew Bright – International Affairs
Controversy on Bush's Military Tribunal Plan

Kathryn French – International Affairs
An Ideological Dispute

Nathan Jaco – Public Administration
Impact of Immigration on Labor Supply, Wages, and Employment in the Graves County Economy

Sarah Landolt – International Affairs
A New Generation of Turkish Immigrants in Germany: Rebels Without a Cause Searching for Identity

Nicholas Miller – International Affairs
Conflicts and Cooperation Between the U.S. and the Former USSR: Will Another Cold War be a Possibility?

Kaito Ofuchi – International Affairs
A Turning Point of Tanzania: Washington Consensus

Ian Reed – International Affairs
The Effects of the International Monetary Fund on Developing Nations

Ashley Rigdon – International Affairs
The World Bank and the Competitive Global Economy

Emily Roethemeier – International Affairs
Post-War Guatemala's Emergence into the Global Community

Zachary Smith – International Affairs & Spanish
Capitalism at Any Cost: U.S. Involvement in Chile

Crystal Watson – International Affairs
Ireland's Changes Since the Membership of the European Union

Honors Seminar in Science Symposium

Barkley Room, Curris Center
Session Chair: Dr. Howard Whiteman
1:30 p.m. – 3:30 p.m.

Asia Burnett – Liberal Arts & A.J. Casey – Theatre
A Project of Gastronomical Proportions

Hannah Dingess – Liberal Arts & Amanda Crider – Biology, Pre-Med
Art History: The Science Behind the Beauty

Kathryn French – International Affairs, Charlie Adams – Architectural Engineering Technology, & Calvin Morris – Business Administration
Globalization is Fueling Global Warming: What Can You Do to Minimize Your Contribution?

Kirby O'Donoghue – Agricultural Education, Marla Moore – Graphic Design, & Tyler Powerll – Industrial and Engineering Technology
Growing Up

Sarah Peddie – Chemistry, Cristin Laird – Psychology, & Austin McCuiston – Exercise Science
An Inside Look Into the Medical World of Grey's Anatomy

Robyn Smith – Liberal Arts & Jenny Wilkins – Psychology
Technology and Interpersonal Communication

Zachary Szczepaniak – Geosciences, & Jang Siegl – Undecided
Nanotechnology: The Road to Reality is Paved with Dreams

Brett Taylor – Organizational Communication, Sarah Fuller – Spanish, & Jennifer McPherson – History
A Girl's Best Friends: The Science behind Diamonds and Chocolate

Rebecca Vergho, John Couris, Dara Doran – Creative Writing
Science, Literature, and their Literal Impact

Biomathematics Project Symposium

Barkley Room, Curris Center
Session Chair: Dr. Maeve McCarthy
3:30 p.m. – 5:00 p.m.

Dawn Cobb & Jona Kos – Biology
An Analysis of the Luria-Delbruck Fluctuation and Mutation Equation

Sarah Farmer – Mathematics, & Sarah Thomason – Biology
The Lotka-Volterra Model

Renee Levesque – Biology, Pre-Med., & Kelsey Nelson – Biology, Pre-Pharmacy
A Look at Enzyme Kinetics: the Michaelis-Menten Equation

Benjiman Tharp & Jake Elliott – Mathematics
Introduction to Island Biogeography

Elizabeth Tucker – Biology, & Patricia Slack – Psychology
How Genetic Mapping Changed Biology: A Look at the Haldane Function

Mary (Molly) Williams & Glenna Buford – Mathematics
Hodgkin-Huxley: Try to Say That Ten Times Fast

Performance

Performing Arts Hall
8:00 p.m.

Symphonic Band and Concert Bands Concert

Director: Mr. John Fannin

Symphonic Band:

Audrey Baugh	Jennifer Meyers
Ashley Boaz	Tyler Morris
Monty Breneman	Gred Neff
Allison Brugge	Kyle Payton
Alex Bruner	Seth Peveler
Josh Byrne	Nikki Pierceall
Nick Calcamuggio	Ryan Redmon
Jarrad Chester	Eric Riggs
James-Kyle Damron	TJ Robinson
Kyle Dixon	Lincoln Rowe
Andre Ellerbusch	Whitney Sanders
Jamie Fairbanks	Michelle Shahpari
Brandon Felker	Foster Smith

Jonathan Fredericks
Cameron Gish
Tom Haley
Lori Hamilton
Andy Howell
Jacob Huff
Stephen Incata
Matt Jones
Susan Lawhead
Spencer Sullivan
Rebecca Thompson
Mady Trevathan
Brant Veal
Jill Wallis
Heather Waters
Carolyn Weiland
Elizabeth Wontor
Nick Wright

Concert Band:
Anna Barsokas
Rachel Blackburn
Jake Bradley
Mandy Brandsasse
Renee Campoy
Garrett Carman
Hedi Clutter
Mary Coleman
Breann Corley
Kevin Dame
Anthony Darnell
Ross Farmer
Brandon Felker
Traci Glass
Katie Graves
DeShawn Grinstead
Jerrick Hefflin
Kenton Henderson
Rebecca Hostilo
Wesley Hughes
Aaron Krueger
Amber Langston
Susan Lawhead
Frankie Leslie
Shaun Linton
Daniel Mayo
Pamela Myrick
Jon Nash
Alex Normansell
Rachel Owen
Michael Owen
Kyle Payton
Ryan Redmon
Ginny Richerson
Eric Riggs
Eric Rudd
Foster Smith
Luke Springfield
Spencer Sullivan
Chad Tilley
Diana Treadman
Chenin Treftz
Justin Veazey
Kagan Walker
Mike Ward
Ryan Weldon

Thursday, April 24, 2008

Oral Sessions

Marketing Projects for Community Clients

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

Jennifer Peios & Kimberly Conklin – Advertising, Thomas Clowers, William Baker, & Allison Anders – Marketing
Hampton Inn of Murray Prospect Survey

Susie Shircliff – Advertising, Mary Ann Jones – Organizational Communication, & Holly Routledge, Amber Conkright, Jordan Myrick, & Sheila Burgess – Marketing
Angel's Attic Donor Survey

History, Humanities, and International Themes Session

Ohio Room, Curris Center
Session Chair: Dr. Ann Beck
1:30 p.m. – 3:30 p.m.

Brittany Fiscus – History
Queen Marie Antoinette's Pre-Revolutionary Image: A Product of Media Fabrication and Personal Flaws

Cassandra Jarred – Sociology
Environmental Injustice

Caroline Jones – Political Science
An Examination of Party Positions and Valence Issues of the 21st Century

Theresa Luebbers – Music Education
Back from the Underworld: The Recurrence in Opera of the Orpheus Myth

Megan McMaster – Political Science
Primaries and Caucuses: Comparing and Contrasting the Campaign Strategies

Sarah Norris – Spanish
Global Issues for Women in the Film "Volver"

Tammy South-Price – Integrated Studies
An Archeological and Historical Study of the Paris Landing State Park Bradford Cemetery

Chamber Singers:

David Bivins	Jessica Moore
Meg Black	Andrew Perkins
Aaren Cadd	David Poole
Jasmine Davis	Elizabeth Powell
Adam Denison	Mary Reding
Scott Gibbs	Eric Rudd
Liahna Guy	Michelle Shahpari
Lucas Hall	Samantha Walters
Haley McCuin	Ryan Weldon
Clark McGee	John Logan Wood

Friday, April 25, 2008

Oral Sessions

Occupational Safety and Health Session

Ohio Room, Curris Center
Session Chair: Dr. Tracey Wortham
9:30 a.m. – 10:20 a.m.

Jerry Boyd & James Akin – Occupational Safety and Health
An Ergonomic Evaluation of Landscaping and Nursery Tasks

Melissa Seay & Joshua Cope – Occupational Safety and Health
1) Back Pack Survey & 2) MSU 16th Street Pedestrian Survey

Performance

Performing Arts Hall
8:00 p.m.

Choral Concert

Conductor: Dr. Bradley Almquist

Other Scholarly Events in April

March 24 – April 21, 2008

Exhibit

Foyer Gallery
Doyle Fine Arts Building

Lesley Patterson-Marx
MSU Alumnus

Tuesday, April 1, 2008

Performance

Performing Arts Hall
8:00 p.m.

Brass Chamber Music Recital
Director(s): John Dressler, Eric Swisher, and Todd Hill

The Trombone Choir:
Jacob Carroll
Joshua Cole
Anthony Darnall
Lance Fulks
Lori Hamilton
Timothy Hutchens
Wesley Hughes
Kent Klare
Matthew Jones
Autumn Lowe
Michael Owens
Seth Peveler
Shaun Saulsberry
Cody Wells

The Tuba Euphonium Quartet:
Brett White
Joshua Cole
Matthew Hightower
James Kyle Damron

The Tuba-Euphonium Ensemble:
Joshua Cole
Matthew Butterfield
Andrew Ellerbusch
James Kyle Damron
Cameron Gish
Matthew Hightower
Frankie Leslie
Aaron Krueger
Justin Veazey
Chris Missig
Ryan Weldon
Greg Neff
Brett White
Lincoln Rowe
Liz Wontor
Kagan Walker

The Blue Brass Quintet:
Zach Kingins
Mark Woodring
Megan Richter
Shaun Saulsberry
Matthew Hightower

The Brass Choir:
Chris Buis
Matthew Jones
Jared Chester
Autumn Lowe
Taylor Clements
Seth Peveler
Keith Dossett
Shaun Saulsberry
Zach Kingins
Eric Luther
Brett White
Brandon Felker
Daniel Haulk

Greg Neff
Susan Lawhead
Daniel Runnels
Foster Smith
Paul Davis
Rebecca Thompson

Brass Quintet:
Norman Blakely
Jonathan Nash
Daniel Runnels
Timothy Hutchens
Matthew Butterfield

Horn Ensemble:
Monty Breneman
Megan Richter
John Dressler
Kimberly Root
Lincoln Rowe
Brandon Felker
Foster Smith
Susan Lawhead
Cory Mullins

The Tuba/Euphonium Octet:
Brett White
Josh Cole
Andrew Ellerbusch,
Elizabeth Wontor
Matthew Hightower
Matthew Butterfield
James-Kyle Damron
Lincoln Rowe

The Trumpet Ensemble:
Norman Blakely
Taylor Clements
Jarrad Chester
Keith Dossett
Nick Calcamuggio
Jonathan Nash

Brass Quintet:
Stephen Incata
Grant Jones
Cory Mullins
Anthony Darnall
James Kyle Damron

MSU Tuba/Euphonium Quartet:
Brett White
Josh Cole
Matthew Hightower
Matthew Butterfield
The Trumpet Ensemble:
Norman Blakely
Taylor Clements
Jarrad Chester
Keith Dossett
Nick Calcamuggio
Jonathan Nash

Wednesday, April 9, 2008

Performance

Lovett Auditorium
8:00 p.m.

Woodwind Chamber Music Recital

Director: Scott Erickson and Scott Locke

Woodwind Quintet:
James-Kyle Damron
Kathryn Stalls
Jonathan Watkins
Jessica Arnold
Emily Wuchner

Clarinet Quintet:
Susan Caraway
Kyle Dixon
Whitney Sanders
Spencer Sullivan
Amber Langston

Saxophone Quartet:
Josh Byrne
Chris Meyer

Alex Bruner
Chris Watson

Thursday, April 10, 2008

Performance

Lovett Auditorium
8:00 p.m.

Percussion Ensemble Concert
Director: Dr. John Hill

Jake Bradley
Jessica Darnell
Paul Davis
Robert Lamberg
Brandon McKnight
Shane Melvin
Kyle Payton
Eric Riggs
Stacey Rotterman
Becca Thompson
Sam Trevathan
Jill Wallis
Ryan Wilkerson
Nick Wright

Presentations

Patterns of Distinction
"Getting Connected" Forum
Organized by ConnectKentucky

Theater, Curris Center
Day Long Event, 9:00 a.m. Beginning

Presentations by TSM Undergraduate and Graduate Students

Guest speakers to include:

Ann Riggs, CIO of Kentucky Education Cabinet

Linda Miller, CIO Murray State University's Information Technology

Allen Lind, Vice President for the Council on Postsecondary Education

Will Prible, Director of Marketing and Operations for Kentucky.gov

Heather Gate, Policy and Program Development Coordinator for ConnectKentucky – No Child Left Behind Offline Program

TSM Awards Luncheon
Open to Participating Students/Faculty
Ballroom, Curris Center
12:00 p.m.

Luncheon Speaker – Dr. Randy Dunn, MSU President

Wednesday, April 16, 2008

Performance

Lovett Auditorium
4:30 p.m.

All Campus Sing
Director: Jessica Moore

Sorority Division:
Alpha Omicron Pi
Sigma Sigma Sigma
Alpha Sigma Alpha
Alpha Delta pi
Alpha Gamma Delta

Fraternity:
Sigma Chi
Sigma Phi Epsilon
Pi Kappa Alpha

Kappa Sigma
Alpha Sigma Phi
Lambda Chi Alpha
Alpha Phi Alpha
Phi Kappa Tau

Independent:
Honors Program
Black Student Council
Wesley Foundation
Summer-O Council
Sock and Buskin
Newman House
Sigma Alpha

Residential Colleges:
Richmond
White
Elizabeth
Lee Clark
Springer-Franklin
Hart
Hester
Regents

Exhibition:
Phi Mu Alpha
Sigma Alpha iota
Alma Mater

Performing Arts Hall
8:00 p.m.

String Chamber Orchestra Concert

Director: Dr. Sue-Jean Park
Conductor: Matthew Butterfield

Da-Ye Choi
Marilyn Feezor
Sarah Horn
Sarah Lee
Andrew Miller
Natalie Miller
Mary Petit
John Stewart
Gracie Wallace
Elizabeth Whisett
Laura Young

April 17 – May 2, 2008

Exhibit

Clara M. Eagle Art Gallery
Doyle Fine Arts Building

Annual Organization for Murray Art Student's (OMAS) Show

Performance

April 17-19
April 20 (2:30 p.m.)

Johnson Theater
7:30 p.m.

"Tartuffe"

Presented by the
MSU Department of Theater and Dance
Director: Mr. Jonathan Awori

Cast:

Matthew Collins	Ashley McLean
Natalie Cunningham	Derek Owen
Nathan Ducker	Justin Pennington
Patrick Jump	Casey Roberts
Matt Markgraf	Dianne Rousseau
Kyla Mellenthin	Jeremy Teague

Thursday, April 17, 2008

Performance

Lovett Auditorium
8:00 p.m.

Provost Wind Ensemble Concert
Conductor: Dennis L. Johnson

Jessica Arnold
Jennifer Bandle
Megg Barry
Norman Blakely
Alex Bruner
Chris Buis
Matt Butterfield
Susan Carraway
Jacob Carroll
Mary Grace Choukalas
Joshua Cole
James-Kyle Damron
Anthony Darnall
Jessica Darnell
Paul Davis
Kyle Dixon
Keith Dossett
Kala Dunn
Cassie Fischer
David Harper
Tara Haslett
Brad Hammack
Matt Hightower
Tim Hutchens
Grant Jones
Theresa Luebbers
Kaylee Marks
Chris Meyer
Bryce Miller
Cory Mullins
Jordan Raspberry
Ryan Redmon
Megan Richter
Kim Root
Stacey Rotterman
Marshall Shank
Samantha Stanley
Shaun Saulsberry
Rachel Terry
Rebecca Thompson
Brant Veal
Jill Wallis
Heather Waters
Jonathan Watkins
Chris Watson
Brett White
Mark Woodring
Emily Wuchner

Presentation

Harry Lee Waterfield Distinguished Lecture Series
by Kentucky Governor Steve Beshear
Theater, Curris Center
7:00 p.m.

Friday, April 18, 2008

Exhibit

Clara M. Eagle Art Gallery
Doyle Find Arts Building
Reception: 6:00 p.m.
Awards: 7:00 p.m.

OMAS Annual Student Art Exhibit Awards Ceremony
Faculty Advisor: Ms. Jeanne Beaver

Juror(s):

Mr. Vance Farrow
Assistant Professor of Art, Foundations, Herron School of Art and Design, Indiana University-Purdue University Indianapolis

Mr. Ricky Boscarino
Multi-media artist and creator of Luna Park, Sussex County, New Jersey

Saturday, April 19, 2008

Performance

Carson Four Rivers Center
Paducah, KY

Concert Choir with Paducah Symphony Orchestra
Conductor: Dr. Bradley Almquist

David Bivins
Meg Black
Brad Brauser
Angela Brown
Adam Bryan
Matthew Butterfield
Aaren Cadd
Rebecca Calvert
Tiffany Carr
Paul Corder
Jasmine Davis
Rebekah Davis
Adam Denison
Stephanie Dettro
Rebbie Edmonds
Justine Emerson
Rebecca Feldhaus
Felicia Gammon
Scott Gibbs
Danielle Gosselin
Liahna Guy
Lucas Hall
Kenton Henderson
Rebecca Hostilo
Brad Jett
Andrew Jones
Patrick Jump
Hayley McCuin
Clark McGee
Brian McWherter
Emily Merrick
Jessica Moore
Laura Neal
Alexander Normansell
Jackie Oswalt
Peyton Pennington
Andrew Perkins
David Poole
Elizabeth Powell
Holly Pritchard
Scott Pullen
Mary Reding
Abby Richmond
Chris Roberts
Eric Rudd
Sarah Schneider
Michelle Shahpari
Erin Silliman
Kimberly Strange
Mady Trevathan
Brant Veal
Jeff Viniard
Elaine Waddell
Samantha Walters
Ryan Weldon
Erika Knight
John Logan Wood

April 25 – May 23, 2008

Exhibit

Foyer Gallery
Doyle Fine Arts Building

2007 OMAS Jurors Exhibition

Katherine Rhodes Fields
Wayne Bates

Tuesday, April 29, 2008

Performance

Performing Arts Hall
8:00 p.m.

MSU Electro-Acoustic Recital Series (E.A.R.S.) Concert
Director: John Steffa

Student Composers:
Stephanie Dettro
Liahna Guy
Carl Harris
Wesley Hughes
Susan Rice
Ben Shelby
Sam Trevathan
Brant Veal

Special Recognition

2007-2008 Undergraduate Research And Scholarly Activity Grants

Recipient	Faculty Mentor(s)
Jeffrey Dean Abner	Iin Handayani
Scott Adair	Terry Holmes
Taylor Clements	Ted Porter
James Michael Copeland	Michael Bowman
Matt Dennis	Claire Fuller
Adam Duley	Suguru Nakamura
Carrie Elliott	Iin Handayani
Zac Elmore	Suguru Nakamura
Brittany Fiscus	Terry Strieter
Broadus Fitzhugh	Terry Derting
Broadus Fitzhugh	Kevin Revell
Mikel Headford	Suguru Nakamura
Chris Horton	David Eaton
Andrew Johnson	Edie Banner
Thomas Keltner	Terry Derting
Ryan Leach	Paula Waddill
Drew Mattmiller	Alexey Arkov
Holly Mowery	Bommanna Loganathan
Derek Nance	Alexey Arkov
Keely Netz	Alexey Arkov
Nathaniel Phelps	Suguru Nakamura
Candace Smith	Pat Williams
Todd Walker	Claire Fuller

2007-2008 Undergraduate Research Scholar Fellowships

Recipient	Faculty Mentor
Zachary Brian	Kate He
Rebecca Feldhaus	Sonya Baker
Courtney Harris	Kate He
Kelly Harris	Kate He
Brian Robertson	David Eaton
Molly Williams	Renee Fister

2008-2009 Presidential Research Fellowships

Dr. Squire Babcock, College of Humanities and Fine Arts

2007 MSU Alumni Association Distinguished Research Award

Dr. Bommanna Loganathan, College of Science, Engineering and Technology

Project Abstracts

Molly Able and Kerri Anderson – Criminal Justice
Our Problem: The Organized Slave Trade in the United States
Mentor / Sponsor: Dr. Paul Lucko

Incredible as it may seem, the evil institution of slavery is alive and well in the United States. From Texas to Michigan to New York, human trafficking continues to enslave more than 17,000 persons per year in this country alone. Through this international slave trade, American citizens import essentially unfree labor for sweatshops, household servitude, and sexually oriented business. By some estimates, this criminal enterprise generates $9.5 billion worldwide for certain organizations. Bringing an end to the human misery caused by such activity will require a combination of political commitment, enhanced public awareness, advanced training for law enforcement, and nationwide coordination of communication and resources.

Dean Abner – Agriculture
Soil Density, Soil Porosity, and Aggregate Size Distribution Following Chicken Litter Applications in Cultivated Fields
Mentor / Sponsor: Iin Handayani

Chicken litter is commonly used as a source of organic fertilizers in agricultural production. The objective of this study was to evaluate the effects of chicken litter applications on soil structures, including soil density, soil aeration and aggregate size distribution. The treatments consisted of 0,1,2,3,4,5,6, and 7 tons/acre of chicken litter rates, and were arranged in a completely randomized block experiment. Soil samples were collected from the depth intervals of 0-5 cm, 5-15 cm, and 15-30 cm. The presentation will show how the various rates of chicken litter applications affect the dynamics of selected soil properties at a given soil depth.

Scott Adair – Marketing
Kentucky State Parks: Public, Private, or Both
Mentor / Sponsor: Terry Holmes

Kentucky State Parks were established to promote economic development in the Commonwealth. True economic development brings outside dollars into the economy. At least 50 percent of guests in the Kentucky Parks System are from out of town and/or out of state, the importance of Kentucky State Parks is critical in the success of the Commonwealth. Kentucky State Parks have been in existence since 1924, in that time length of time they have gone from being something to boast about and be proud of, to Parks that have all but been forgotten as they slowly deteriorate. A staggering $10.2 million has been invested in Kentucky Dam Village State Resort Park and Lake Barkley State Resort Park to make much needed renovations. In the future, it will be necessary to make renovations, as done last year at these two Parks, due to usual wear and tear on accommodations; it is something that must happen every ten years. There may also be opportunities to build new resorts at Parks that currently have no rooms or cottages, such as Mineral Mound State Park that is a beautiful golf course. However, it may be impossible to pursue either of these opportunities because of greater need for state funding in areas that need new roads or schools. In the past Government has raised taxes as an option to generate revenue, but this provided little relief, and only anger citizens. Where can fiscal funds be found when raising taxes is not an option? One answer being seriously evaluated is allowing private business to build on state-owned, public land. This option could allow Kentucky to generate more profits for the State Park System, with minimal investment. The purpose of this project is to determine potential benefits and possible pitfalls linked to more use of Public-Private Partnerships in our State Resort Park System.

Charlie Adams, Kathryn French, and Calvin Morris – Architectural Engineering Technology, Business Administration, and International Affairs
Globalization is Fueling Global Warming; What Can You Do to Minimize your Contribution?
Mentor / Sponsor: Dr. Howard Whiteman

Over the last fifty years, the world has seen an unprecedented rise in globalization. This trend of interconnectivity has fueled the massive global economic boom that is still being experienced today, but it also has major side-effects. Globalization is partially responsible for fueling global climate change. Such an increase in world traffic has led to enormous amounts of greenhouse gasses which are released on a continuing basis into the atmosphere. This report will analyze how globalization is responsible for fueling global warming by analyzing three categories involved in this process: consumers, industry, and governments. Each subsection plays its own role in the global community, but they are all somewhat interconnected. The consumer demand fuels industry all over the world, and in the quest for cheaper and cheaper goods, trans-continental trade has skyrocketed, leading to the burning of fossil fuels in huge amounts. Governments have the responsibility to oversee the actions of business, industry, and consumers, but as the report will show, not all governments are doing their part in combating climate change. Through environmental policies, governments shoulder a great deal of responsibility for the attitude that a country has about the environment and climate change. The report will finish with an examination of how each category studied can play a role in mitigating climate change. This could take the form of sweeping new environmental policy, more energy efficient production plants, more localized production, and energy-saving techniques that can be used by everyday consumers and individuals.

James Akin and Jerry Boyd – Occupational Safety and Health
An Ergonomic Evaluation of Landscaping and Nursery Tasks
Mentor / Sponsor: Dr. Tracey Wortham

This presentation will include an analysis of ergonomic issues within a Landscaping and Nursery business in Western Kentucky. Two members of the OSH 663 Applied Workplace Ergonomics visited the site to evaluate potential ergonomic risk factors in landscaping tasks such as planting trees, bushes, plants, and spreading mulch. Equipment including a push/pull gauge, goniometer, camera, and tape measure were used to collect data for input into analytical assessment tools such as checklists, Rapid Upper Limb Assessment, NIOSH Lifting Equation, and discomfort surveys. An overview of our findings, along with recommendations for reducing the ergonomic hazards will be presented.

Johnathan Alexander, Derrick Bradshaw, Adam Campbell, Eric Dunsford, James Erwin, David Field, January Futrell, Randi Gilstrap, Jason Goodrum, John Gorey, Jacob Hagen, Andria Kroner, Dustin Lawson, James Mayes, Andrea Merimee, Emily Pollom, Kelsea Reagan, Billy Riden, Daniel Rouse, Robert Schaefer, Herbert Sharp, Michael Sieg, David Stepp, Jessica Tapp, James Washburn, Kyra Williams, and Jeremy Wynn – Geosciences
Murray: Cycling into the Future - A Blueprint for Bicycle Path Implementation
Mentor / Sponsor: Dr. Robin Zhang

As students in our Land Use Planning class, we have been asked to create a basic plan to incorporate bike paths into the city of Murray. It is believed that if people utilized bikes more as a way to get around or as a leisure activity that the community as a whole would benefit greatly in many different aspects including personal health, environmental health, and an increased sense of community. Adding bike paths will also make traveling much safer for those who already ride bicycles as a means of transportation. In order to realize this goal, we plan to closely examine available maps and select major destinations of the city. We will then choose the shortest and safest route to each destination by traveling to each area and taking note of traffic density, road conditions (including width and sidewalk availability), and the number of pedestrians which pass through. Another objective to focus on is bike facilities for cyclists to store their bikes which some may already exist but some must also be implemented. After all is said and done we hope to have a feasible plan that the city's planning committee will approve of to incorporate into the city of Murray.

Heidi van Ameringen – Economics
Closing the Gender Gap: A Focus on Women's Equality in Education
Mentor / Sponsor: Dr. David Eaton

This paper investigates the impact of female education on economic growth in developing countries and the importance of closing the gender gap by focusing on women and education. It examines how the promotion of gender equality in education attainment has an effect on human capital and growth by comparing the impact of different policies regarding female schooling between countries of different levels of economic development. It also investigates the economic and social returns of education on females are higher than the investment in education on males.

Allison Anders, William Baker, Thomas Clowers, Kimberly Conklin, and Jennifer Peios – Advertising and Marketing
Hampton Inn of Murray Prospect Survey
Mentor / Sponsor: Dr. Timothy Johnston

This study was conducted to learn about potential customers of Hampton Inn of Murray. A survey of Murray State students asked about their family members' attitudes toward, and experiences with, local lodging, specifically (1) what they look for in a hotel, (2) what occasions or events bring them to Murray, and (3) what are their perceptions of the strengths and weaknesses of lodging providers in the Murray area. Findings from a survey of about 100 respondents will be presented.

Yvonne Anderson, Megan Miller, and Whitney Ray – American Humanics
Helping Seniors Raise Their Self-Esteem, Self-Efficacy and Social Skills
Mentor / Sponsor: Dr. Roger Weis

Hickory Woods Halloween Extravaganza was a two hour event with students from Murray State University entertaining Senior Citizens from the Hickory Woods Retirement Center. This program allowed Senior Citizens a chance to gain self-esteem and be active as well. This program also allowed college students to gain great experiences in bonding with the senior citizens of the center and just having fun. Our program was a great experience for the Senior Citizens because they were given a chance to be more active, be more socially involved, and have fun. We went to Hickory Woods Retirement Center to have a Halloween party. The Halloween party consisted of the seniors painting pumpkins, playing washers, playing bingo, and taking pictures in costumes that the seniors picked out themselves. There were also a few kids that came in to play with the seniors and this made the experience even better. This program will be remembered by the students and senior citizens as a great learning and bonding experience for years to come.

Chris Ark, Lauren Elkins, and Whitney Kelsey – American Humanics
F.A.C.T.
Mentor / Sponsor: Dr. Roger Weis

First Aid for Children Today (F.A.C.T.) is a program that leads children ages 5-8 through health promotion and injury prevention activities. Three students from Murray State University took an excerpt of the lessons and taught the concepts at an after school program named Kids Company. Topics such as first aid, personal safety and injury prevention were covered with the children. The format for the session held at Kids Company consisted of a poster story, discussion and various interactive activities and demonstrations. The poster story introduced the children to the First Aid Critter Clan and the topics that the lesion plan covers. The instructors demonstrate how to care for various injuries and lead the children through various coloring and puzzle activities in order to reinforce what the children have learned. The objectives of F.A.C.T. are to increase children's knowledge in basic first aid so that they will know what situations are dangerous in the future and will be prepared to help a friend in case of an accident. Overall, this is a wonderful program that strives to better the lives of children and ensure that they will be safe and able to handle any situation that is thrown their way.

Christopher Austin – Mathematics
Religious Dimensions as Predictors of Anti-Muslim Attitudes
Mentor / Sponsor: Dr. Paula Waddill

Religion has frequently been studied as a factor of prejudice. Different aspects of religion have been found to correspond to prejudice attitudes against different racial and gender groups. This study considered some of the major aspects used in such studies in an attempt to determine any relationships between those aspects and anti-Muslim attitudes. Religious knowledge of Islam and Christianity was also explored as a possible factor. A sample of sixty seven students from Murray State University who identified a current or previous affiliation with Christianity volunteered to complete a set of surveys measuring these aspects. Results indicated that most of the same aspects of religion that predicted prejudice in other contexts also predicted prejudice against Muslims. Additionally, a greater knowledge of Islam corresponded with lower prejudice scores, and greater knowledge of Christianity had similar results.

Christopher Austin – Mathematics
Religious Prejudice
Mentor / Sponsor: Dr. Paula Waddill

Over the past several years there has been a noticeable attitude of prejudice towards Muslims in this country. Some of the same explanations that tend to be used to account for nonreligious prejudice have come up again, and some say it is mostly ignorance that drives this attitude. Still, others claim that because Christianity is the predominant religion in America the prejudice against Muslims is religiously based. This study looked at a combination of these two claims to see if there exists any relationship between knowledge, dimensions of Christian religiousness and Islamic prejudice. Sixty seven students at Murray State University volunteered to complete a set of surveys related to these issues. All participants identified themselves as Christians. The surveys measured anti-Muslim attitudes, Christian and Islamic knowledge and confidence of that knowledge, five different religious dimensions and social desirability. Results indicated that higher knowledge of Islam tended to predict less Islamic prejudice. In addition, knowledge of Christianity tended to show the same pattern. Finally, the religious dimensions that have predicted other types of nonreligious prejudice were significantly related to Islamic religious prejudice in the same way.

Olivia Baggett – International Affairs
Forces of the Past on the Present: US-Iranian Relations
Mentor / Sponsor: Dr. Michael Basile

The purpose of this paper is to discover how past relations between Iran and the United States influence the current geopolitical system in the world today. I will attempt to explain the impact that these past relations have on the current situation at hand. Since we will be discussing the forces of the past on the present, I will also go through a brief history on affairs between the United States and Iran. I will begin with "Operation Ajax," and continue by covering topics such as the Iranian Revolution and the Iran-Contra affair of the 1980s. In conclusion to my research, I will discuss the possibilities of future diplomatic relations between the two countries, and what that diplomacy would mean for the rest of the world.

Jonathan Baldridge – Psychology
Superiority Bias: Fact or Fiction?
Mentor / Sponsor: Dr. Paula Waddill

The researcher designed the present study to assess the validity of the construct known as superiority bias, which is a tendency to view oneself in a more positive light when compared to others. One hypothesis confirmed in this investigation was that superiority bias could be an artifact of the measurement and not entirely due to actual beliefs of self-worth. Eighty Murray State students (53 female, 27 male) participated in this study. Participants were randomly assigned to one of four conditions in which perceptions of self-worth were evaluated with three primary assessments: one comparative (self/other), one non-comparative self, and one non-comparative of other people. The order of all assessments was counterbalanced across groups. Scores for the comparative assessments versus the non-comparative assessments indicated greater superiority bias in the comparative groups, which implies that superiority bias may indeed be primed by the measurement to an extent. Implications of these findings are discussed.

Candra Barnett, Christie Nelson, and Denise Perdue – American Humanics
Enlighten
Mentor / Sponsor: Dr. Roger Weis

Enlighten is a two hour presentation developed by students from Murray State University. The student's goals are to provide a seminar led by a respected leader in the community, to "Enlighten" the attendees on the value of Christian leadership. In addition, to provide meaningful data, resources, and encouragement through and on-going networking capability to promote Christian leadership in the workplace. The formats consists of an initial meet and greet session. Immediately following, the guest speaker would be introduced to speak on the values and necessity of Christian leadership; to include an inner reflection of personal goals and standards. A question and answer period would follow, and afterward light refreshments.

Kevin Batts – Economics
Ethanol: Falling Gas Prices, Falling Economy
Mentor / Sponsor: Dr. David Eaton

The future for alternative fuels looks bright. With international oil prices reaching record highs and prices at the pump soaring, the United States has turned to ethanol as a substitute for oil. However, is ethanol an economical solution to America's dependence on oil? This paper attempts to answer this question by analyzing the total surplus and price increases associated with ethanol related markets. First, I will identify the elasticities of supply and demand associated with corn related markets. Next, I will evaluate price increases in various ethanol-related markets. Using the results, I will be able to determine the efficiency of corn-based ethanol.

Tia Lynn Beltz – Spanish
The Political and Social Analysis of Love in the Time of Cholera
Mentor(s) / Sponsor(s): Drs. Meg Brown and Susan Drake

Gabriel Garcia Marquez's "Love in the Time of Cholera" displays all the evidence of a love story that will ultimately stand the test of time with its riveting story-line and rich Colombian history cleverly woven in with intriguing and complex characters. In his novel, it is evident that Garcia has an extraordinary ability to mirror the political and societal issues of the nineteenth and twentieth centuries with humor and wit sure to draw the attention of any reader.By exploring the author and his novel, the reflection of Colombian history, themes, symbols, and how "cholera" has impacted the twenty-first century, all can come to love and respect a timeless love story, fifty years in the making.

Tia Beltz – Spanish
The Effects of NAFTA on the Economies of the United States and Mexico: A Study of Illegal Immigration
Mentor / Sponsor: Dr. Michael Basile

The North American Free Trade Agreement (NAFTA) was first proposed to help boost the Mexican economy and ultimately aid in the problem of illegal immigration. With today's issues in the polls and debates in Decision 2008, it is evident that NAFTA has not boosted Mexico's economy and has not kept migrants out of America. By exploring the intentions of NAFTA, its effects on the Mexican economy, and the effects on America's upcoming Presidential elections, one can get one step further in understanding and working towards a solution for mass Mexican migration.

Terrence Biggers and Marshall Healy – American Humanics
Masters of Disaster
Mentor / Sponsor: Dr. Roger Weis

This study seeks to educate readers of the history, purpose, and career opportunities offered by the American Red Cross. Also included is a comprehensive project review of the Masters of Disaster program, which is dedicated to inform students of the dangers posed by natural disasters as well as educate them of the proper safety procedures.

Leah Blackketter – Chemistry
Determination of Selected Inorganic Anions as an Indicator of Ground Water Quality in Hickman County, Kentucky
Mentor(s) / Sponsor(s): Drs. Edie Banner and Harry Fannin

Hickman County, Kentucky, located in the the Jackson Purchase, is a rural and agricultural area. The county is home to a number of confined-animal facilities. The majority of these are poultry farms; however, plans have recently been developed to construct a number of swine facilities in the county. Since ground water is the primary source of potable water and contamination of the water from current and proposed agricultural activities is possible, it was necessary to obtain a good water-quality assessment for the area. Fifty samples were taken from wells dispersed throughout the county. Sites chosen for this analysis are representative of the geological diversity of the area. Portions of these samples were taken to the University of Kentucky's Environmental Research and Training Laboratory (ERTL) for analysis of inorganic anion content by ion chromatography. The anions of interest were F-, Cl-, SO42-, Br-, and NO3-. The average concentrations of chloride, sulfate, bromide, and nitrate were 12.8, 4.1, 0.11, and 3.1 ppm, respectively. These four anions exhibited no statistical difference in concentrations among the different aquifers in the county. The concentrations of the anions were compared with their respective maximum contaminant levels (MCLs) or secondary drinking water regulations (SDWRs). Elevated nitrate levels were displayed in some of the wells sampled; none of the other anions displayed concentrations above their MCL or SDWR. Fluoride data were 90% censored; therefore, no statistical analyses were performed for that anion. A negative correlation between well depth and both chloride and nitrate concentrations was observed; furthermore, a positive correlation between Cl- and SO42- concentrations was revealed.

Brianna Bland – Spanish
Illicit Globalization
Mentor / Sponsor: Dr. Michael Basile

Illicit effects of globalization may harbor a dark phenomenon that plagues not only our global economy, but also has other cultural and even political dimensions. In particular the illegal sex trade affects great numbers of young children across the globe. While there may be many complex reasons for such criminal activity, including economic and unintentional externalities, one argument to examine would be the extent and nature of the individual choice and power to combat such trade. Though the right to earn a profit may be generally accepted, the question of another's freedom and self degradation may also be at stake. In the context of globalization, it is important to raise the ethical issue of self-degradation as the compelling price to pay for survival in the age of globalization. When the main issues are being ignored and we live as if nothing wrong is happening, we must step back and ask a question: How can I make people aware of this tragedy and be a part of its end?

Kristin Boom, Angela Owens, and Melisa Clapp
Angel's Awareness
Mentor / Sponsor: Dr. Roger Weis

Angel's Awareness is a program designed to collect clothing, small appliances, and cash donations to support both Angels Attic and Angels Community Clinic. This program also seeks to inform people of the number of community members living without health insurance. By reaching out to the community, we wish to increase awareness of both Angels Attic and Angels Community Clinic and the purpose of each organization. The format of the program will consist of two separate clothing drives at two different locations. The first clothing drive will be conducted outside of the Curris Center located on Murray State University's campus and is directed towards the students, as well as the faculty and staff of the university. The second drive will be conducted at E.W James & Sons grocery store in Paris, Tennessee. A cash donation jar will be set up and boxes will be available to place donated items in. Cookies will also be available as an incentive for those who donate.

Mandy Brandsasse – Sociology
Desperation and Greed: The Organized Crime of Body Organ Sales
Mentor / Sponsor: Dr. Paul Lucko

Groups of individuals who desire to profit from illegal enterprises make organized crime possible. A growing level of illicit international criminal activity today involves the sale of human body organs. Desperate persons who require organ transplants to save their lives or who need the money that they can make from selling their body parts engage in this activity. Many opportunistic entrepreneurs, however, participate due to the profits that they can earn. As a result, some ruthless parties may even commit murders in order to obtain body parts to distribute for pecuniary gain. This paper describes the traffic in human body organs, considers factors that encourage the practice, and makes policy recommendations for dealing with such matters.

Kelly Brannon – Agriculture Business and Economics
Switchgrass: A Driving Force in Tomorrow's Fuel
Mentor / Sponsor: Dr. Tony Brannon

Switchgrass will soon be fueling America by producing cellulosic ethanol with its high content of cellulose and adaptability to many different climates and soil conditions. The production of this grass is in its infancy and research for maximum yields is needed. Upwards of 10,000 acres of switchgrass will be needed in Kentucky and surrounding states in the next 5 years. With a seeding rate of 8 pounds per acre at a cost of $12- $16 per pound this will be a major cost of establishment. Seed production of the highly acclaimed Alamo variety is the main focus of this research. The research project, a joint project with the University of Tennessee, consists of determining the seed production capabilities of a three year old field of switchgrass, a comparison of seed production from a one cut forage system vs. a two cut system, and a test of the efficiency of direct harvesting by a specially prepared combine verses manually harvested and threshed test plots as a control. There will be 3 replications of combine harvesting in both the one cut and two cut systems and 4 replications of 3 different treatments in the manually harvested and threshed test. Results will be disseminated to the agricultural community to provide needed data in this new crop usage.

Zachary Brian, Courtney Harris, and Kelly Harris – Biology
Morphological Plasticity: A Comparative Study of Leaf Traits Between Exotic Honeysuckle (Lonicera japonica) *and its Native Congener* (Lonicera sempervirens)
Mentor / Sponsor: Dr. Kate He

To understand what types of biophysical traits make a successful invader, we conducted a comparative trait-based study to identify leaf-level traits associated with a successful invasive species. We compared leaf traits of exotic invasive (Lonicera japonica) and native (Lonicera sempervirens) honeysuckle species to test the hypothesis that invasive honeysuckle outperforms its native congener owing to its possession of a suite of advantageous leaf traits. The examined traits included leaf biomass, specific leaf area, leaf thickness, stomatal length and density, main leaf vascular bundle size, proportion of photosynthetic tissues, and leaf nitrogen and carbon contents on mass basis. The resultsof multivariate analysis of variance (MANOVA) indicated that significant differences existed in traits directly related to plant photosynthetic capacity or carbon gain between the two species. Specifically, higher carbon gain, larger proportion of photosynthetic tissues, thicker leaves, larger stomatal size, higher stomatal density, and larger leaf vascular tissues were associated with the exotic species. Larger leaf area and higher nitrogen content on mass basis were found in the native species. Our results reveal that the leaves of the invasive honeysuckle are morphologically optimized for a higher CO2 gas exchange and faster carbon gain. Furthermore, the lower nitrogen content found in the invasive honeysuckle leaves characterizes the invader with a high nitrogen use efficiency, which enhances its growth potential. We conclude that combination of advantageous leaf traits enable the exotic honeysuckle to be more plastic and successful compared to its native counterpart in the invaded ecosystems.

Zachary Brian, Courtney Harris, Kelly Harris, and Rachel Harris – Biology
Invasion Study: Testing the Roles of Taxonomic Affinity and Species Origin in Intentional Plant Introductions Using Nursery Data in Kentucky
Mentor / Sponsor: Dr. Kate He

Biological invasions frequently bring about negative impact on natural ecosystems including changing their structure and function and causing losses of biodiversity. Studies have shown that a large percentage of invasive species are introduced intentionally as horticulture plants by the green industry. More than 5,000 introduced species have escaped cultivation and become naturalized to natural habitats in the United States. The repeated introductions of nonnative plant species have accelerated the invasion processes considerably. Currently, there is still a lack of specific information on nonnative and invasive plants in the state of Kentucky, especially in the areas of species origin and the pathway of species introduction. This study is designed to gather information of plant species found in nurseries in Kentucky and to test the following hypotheses using contingency table analysis: there is no relationship between species taxonomic affinity and native origin; there is no origin preference by people when they purchase gardening plants from local nurseries. By identifying and recording 502 species in 101 families and 258 genera from twenty-two nurseries statewide, we discovered a significant relationship between taxonomic affinity and the origin of plant species; nonnative plant species, especially with eastern Asia origin, are preferred by gardeners in general. Our results suggest that taxonomic affinity and native origin of plant species could be used as an effective indicator in identifying the pool of potentially invasive species in the future. Moreover, our findings validate the fact that nurseries have been one of the major sources of introducing nonnative plants into natural communities as suggested by previous studies. Our study could provide a solid basis for further conservation research on the effects of intentional introduction of nonnative plants in Kentucky and other regions in a larger spatial scale.

Clay Brigance, Courtney Crain, and Patrick Wallace – American Humanics
Pure Water Program
Mentor / Sponsor: Dr. Roger Weis

The Pure Water program exists to promote awareness of global water issues and encourages action among college students. Some of the intended objectives of the program included having an increased awareness of water purification through EDGE Outreach resources, raising funds, an increased sense of need and responsibility, and a desire to know more. The Pure Water program is in the format of a presentation. The presentation is approximately 15 minutes long, with each member of the team utilizing around 5 minutes to present. Patrick Wallace quickly introduces the program and Clay Brigance begins with a magic trick and a discussion concerning some of the water problems in the world, specifically with pipes and systems. Following Clay, Courtney Crain shows the EDGE Outreach promotional video and discusses the purpose and mission of EDGE. Following Courtney, Patrick Wallace gives the students different ideas about how to get involved and make a difference, as well as the conclusion of the presentation. Due to time constraints, Patrick made the executive decision to move the video to the beginning and have the magic trick follow the video. This ended up being effective because the video introduced the topic and the magic trick interested the audience and got them thinking about water problems before Courtney and Patrick presented their sections. The class seemed interested in the program overall and asked several questions.

Andrew Bright – International Affairs
Controversy on Bush's Military Tribunal Plan
Mentor / Sponsor: Dr. Michael Basile

Ever since the September 11th attack, the U.S. has been trying to find ways to deal with terrorists. We have increased our security, and become more alert to details that may have seemed trivial prior to the attack. We have also found ways to search for and kill terrorists. We have not yet, however, decided on a way to try the terrorists once they have been caught. President Bush has proposed a plan to try terrorists in military tribunals. However, there is some opposition to his plan, as some people say his plan is unlawful, or just too broad and unclear. The Geneva Convention is an international policy that specifies the required treatment of a prisoner of war. Some critics in the Congress say that Bush's plan for a military tribunal goes against Geneva Convention standards. In 1949, both the U.S. and Afghanistan ratified the policy, but enforcement of the treaty has not been strict (Wedgwood A11). According to the Geneva Convention, legal combatants must follow the Uniform Military Code of Justice (Ford 1). However, Al Qaeda soldiers do not follow the code, and therefore are illegal combatants. President Bush stated that anyone who fought for the Taliban could not be eligible for POW status, making them subject to trial by a military tribunal (Bravin A20)

Cindy Brown – American Humanics
Video Diary
Mentor / Sponsor: Dr. Roger Weis

Video Diary is a short video made by White Star Horse Rescue & Rehabilitation to showcase newly rescued horses in the program. The video will give the board members a tool to network and give a "face" to abused horses. The method of this project was simple. A 10 minute video showing a mare and colt newly enrolled in the rescue program. The tape will review the mission statement and goals of the rescue. It will be distributed to board members to show to groups of potential donors.

Misty Brown and Adam Elias – American Humanics
Job Scout
Mentor / Sponsor: Dr. Roger Weis

Job Scout is a service learning program designed to assist international students with developing the skills necessary to attain a job in the United States. Designed under the guidance of faculty mentor Roger Weis, the program presents upper-level English as a Second Language (ESL) students at Murray State University with a short seminar on developing an effective resume, and allows students to witness and participate in a mock job interview. The program was presented within the curriculum of the ESL program, in this instance as part of Listening Comprehension courses. By participating in *Job Scout*, students gain various benefits, including valuable insight into the process of attaining a job in America, the confidence to experience a real job interview, the skills necessary to create a unique and effective resume, and the opportunity to test and expand their repertoire of career-related English vocabulary. Students have reacted positively to the program, and the program evaluations reveal that the participants benefited from its components.

Glenna Buford and Molly Williams – Mathematics
Hodgkin-Huxley: Try to Say That Ten Times Fast
Mentor(s) / Sponsor(s): Drs. Maeve McCarthy and Howard Whiteman

The talk will start with scientific background information and definitions concerning cell membranes. With this knowledge, an outline of the derivation and history for the Hodgkin-Huxley model will be discussed. Then a mathematical analysis of the model will be given along with a biological interpretation of the purpose of the model. This will lead into the impact the Hodgkin-Huxley model has had on scientific research and its current applications to health issues.

Christa Bugg and Megan Jackson – American Humanics
Hygiene Drive
Mentor / Sponsor: Dr. Roger Weis

The Hygiene drive for Needline of Murray, Ky is a drive planned to collect hygiene products for the organization. It was strictly based on donations and was set up by Murray State University American Humanics Students. The drive was held in front of Walgreen's and Rite Aid of Murray, Ky. Tables and boxes were set up in front of the door to collect the items as people were exiting the pharmacies. Cards with products needed were handed to each customer as they entered. These cards were just to be a reminder to purchase an extra item to donate as they browsed the store. The purpose of this drive was to collect as many items possible and to help give people a way and a reminder to help families in their community.

Aimee Bullock and Sherri Todd – American Humanics
MCC Student Affairs
Mentor / Sponsor: Dr. Roger Weis

MCC Student Affairs Orientation/Mentoring Program is a two and half hour training session for all full-time Student Affairs new employees to promote mentoring, and policy and procedures training. This process is to assist new employees with tours, employee introductions, departmental guidelines and all policies and procedures. This gives the new employees to meet their mentors and to ask any questions at that time. The format of the program consists of sessions to be held Friday mornings from 9-11:30am. These sessions will consist of the Dean of Student Affairs, Registrar and all heads of departments in the Student Affairs Department. This gives the Student Affairs personnel a chance for a brief overview of each department/program in the Student Affairs Department. A tour will be given as a group of all buildings on each campus. Introductions will be made to all employees interested in what is covered in case they are unfamiliar with any of the other campuses or policies and procedures. All data collected from the Pre/Post Tests and Evaluations will be used for future sessions. The main goal of the sessions is to make sure the new employees are welcomed into the department and are aware of all policies and procedures to abide by.

Sheila Burgess, Amber Conkright, Mary Ann Jones, Jordan Myrick, Holly Routledge, and Susan Shircliff – Advertising, Marketing, and Organizational Communication
Angel's Attic Donor Survey
Mentor / Sponsor: Dr. Timothy Johnston

The goal of this study was to determine from potential donors the level of awareness of, and attitudes toward, Angel’s Attic and Angel’s Community Clinic. Angel’s Attic is a thrift store located in Murray, KY. Proceeds from the store sponsor Angel’s Community Clinic, which provides free medical and dental care to the uninsured, low-income workers in Calloway County. Findings from a survey of about 100 members of the University community will be presented.

Asia Burnett and A. J. Casey – Liberal Arts and Theater
A Project of Gastronomical Proportions
Mentor / Sponsor: Dr. Howard Whiteman

Mothers always say that cooking is a science, but is it really? Gastronomy, the study of food and its interactions with our senses, blends the art and science of good eating. In our savory examination of gastronomy, we will analyze the importance of composition and culture in relation to food, and why the art of dining really is a science.

Aimee M. Byassee – American Humanics
Grandparents for a Day
Mentor / Sponsor: Dr. Roger Weis

There are many children in this world that will never have opportunities to succeed. There also many senior citizens who feel as though they no longer contribute to the world. Our two groups saw these two issues and decided to do something about it. We came up with Grandparents for a Day: Giving Christmas to the Grandchildren of this World. This project involves Operation Christmas Child, the project in which shoe boxes are made for children in third world countries, and the members of the Senior Citizens Center. This allowed the Senior Citizens to get involved with our generation and help us make Christmas presents for the children who are less fortunate in this world. Now that the project is complete we have influenced many different people's lives and we hope that the senior citizens will want to be involved intergenerationaly again and also be involved with Operation Christmas Child or other programs in which they can affect the world as it is.

Jamiamah Campbell and Brittany Leslie – American Humanics
Oshkosh Placement Exchange
Mentor / Sponsor: Dr. Roger Weis

The Oshkosh Placement Exchange Prep Session is planned to help ease the transition from student to employee and the process in between. This will be a two part session covering everything from clothing, food, lodging, to resumes and mock interviews. This will be roundtable discussion and relaxed atmosphere with lunch provided. This program will be put on by two graduate students from Murray State University, Brittany Leslie and Jamiamah Campbell. We want to give those students that are interested in the Student Affairs field the best possibility of finding a job they will enjoy, plus it makes Murray State University look well in how they educate and support their students. The program will be on November 9th in the Ohio Room in the Curris Center at 11:30am until 1:00pm.

David Barkley Carr Jr. – Economics
What is the economic impact of pirated movies?
Mentor / Sponsor: Dr. David Eaton

In the era where technology is used constantly in our everyday lives, we can benefit from it or not. One particular business industry that is not benefiting from the use of more advanced technology is the movie industry. Every year movie companies lose millions of dollars in revenue to pirated movies. Pirated movies can be a copy of the movie that was captured in the movie theater, with a high quality camera, or an actual DVD copy of the movie far before its release date. I will talk about some economic impacts of pirated movies, what movie companies are doing to deal with this problem, the monetary damage to the industry, and how this is an issue worldwide. From statistical data that I gather, I will also make a growth model to forecast future effects of continued piracy use.

Eric Chumbler and Alan Strong – American Humanics
Saturate
Mentor / Sponsor: Dr. Roger Weis

Saturate is a 3 hour program on a Saturday afternoon that allows Lone Oak First Baptist church middle and high school students the opportunity to show God's love to the surrounding communities of Lone Oak and Paducah. The Bible (Acts 1:8) tells us to go out into the world and tell others about Him. Saturate has allowed students to display the love of God to those that may not know him, as well as those that may already know God. The format of Saturate is to allow the students to go out into the community and interact with community members in a Christian way. The students went through two different neighborhoods in Paducah going to each door and offering the resident a battery to place in their smoke detector, as well as a tract on salvation. The students doing showing a loving deed towards the community shows the loving deed God did by sending his son to die on the cross for us. He didn't have to do it, but he wanted to do it. The Bible tells us to be "disciples of men" and to show love for others, Saturate is a program that aims to do that very purpose.

Tyler Clark – Biomedical Sciences
The Use of Real-Time Polymerase Chain Reaction Allows for Quantification of Developmental Gene Expression.
Mentor / Sponsor: Dr. David Canning

Polymerase Chain Reaction has been a useful technique for the amplification of of small amounts of DNA. Recently, cycling technology and chromophore chemistry have allowed for the development of Real- Time Polymerase Chain Reaction, a technique that allows for relative and absolute quantification of DNA amplification. By extracting and reverse transcribing messenger RNA expressed in a cell or tissue, measurement of gene expression is possible. Here, we measure the amount of gene expression occuring in stage 4, 5, and 6 chick embryos. The genes of interest are: SOX2, a neural plate marker, OTX2, an early transcription factor, and NOG, which is involved in anterior neural patterning.

Dawn Cobb and Jona Kos – Biology
An Analysis of the Luria-Delbruck Fluctuation and Mutation Equation
Mentor(s) / Sponsor(s): Drs. Maeve McCarthy and Howard Whiteman

This presentation will examine how the Luria-Delbruck equation was formed and why Max Delbr'ck and Salvador Luria formed this equation to use as a fluctuation test. We will also discuss how the modified equation of the original Luria-Delbruck is the primary equation that is used for mutation rate analysis today. How the equation is used in biology to show the difference between induced mutation and spontaneous mutation will also be explained. We will address the ways that the Luria-Delbruck equation is used in modern day biology and specifically in genetics.

Joshua Cope and Melissa Seay – Occupational Safety and Health
Back Pack Survey
Mentor / Sponsor: David Fender

A total of 103 students (mean age 22) participated in the study, 78 male and 25 female. Of these individuals 28% of the males and 48% of the females said that they experience back pain at times and on a scale of 1 to 10 with one being the lowest level of pain 86% of the males who experienced back pain rated the pain from 3-5 and 75% of the females did the same. Another indication of the pain level was that 36% of males and 41% of the females said that the pain was severe enough at times to limit their activities. Also of those who experienced back pain 68% of males and 66% of the females said that they believed their back pack made their pain worse and 15% took pain medication.

Joshua Cope and Melissa Seay – Occupational Safety and Health
MSU 16th Street Pedestrian Survey
Mentor / Sponsor: David Fender

The study was on where and how people crossed 16th Street, a major road that divides the campus. The report was divided into two parts. Part 1 was the results of the survey and part 2 made recommendations on avenues to explore to make pedestrian street crossings safer on 16th Street.

James Copeland – Telecommunications Systems Management
Real Time Network Traffic Capture and Analysis on a Public University Network
Mentor / Sponsor: Dr. Michael Bowman

A honeynet was set up on the campus using a public range of Murray State IP addresses. This honeynet was setup to mimic a portion of the Murray State network. The objective was to gather as much information about the malicious traffic that comes to the Murray State network. This research dealt with network and security analysis. It has helped to reveal the types of attacks Murray State faces, whether automated or not.

John Couris, Dana Doran, and Rebecca Vergho – Creative Writing
Science, Literature and their Literal Impact
Mentor / Sponsor: Dr. Howard Whiteman

Our project focuses on how science and literature have interacted in the past, how they are currently interacting now, and their potential to interact in the future. For instance, the first printing press had a major impact on literature and literacy, and today millions of science fiction novels have the potential to influence science research. We will particularly focus on the future of libraries, since we have electronic books and e-libraries on-line.

Amanda Crider and Hannah Dingess – Biology, Pre-Medicine and Liberal Arts
Art History: The Science Behind the Beauty
Mentor / Sponsor: Dr. Howard Whiteman

Throughout history, art techniques and methods have experienced a wide variety of change. From Jan van Eyck's movement toward oil painting to Leonardo da Vinci innovative fresco methods, artists have explored various techniques -some finding success, others not. With our project we plan to thoroughly discuss the science behind art techniques and advances found in frescos, oil paintings, and murals, both past and present. Going beyond a basic description, we will provide explanations for previous methods and why certain techniques have failed while others prevailed, all the while explaining how this information applies to the present day artist and observer.

Daniel David – Sociology
Lords of War: The Organized Illegal International Arms Trade
Mentor / Sponsor: Dr. Paul Lucko

Illegal weapons dealers are difficult to study because little is understood about why they do what they do. There is only a small degree of research on this topic. However, important participants in this traffic share certain characteristics and operational patterns. They maintain political connections in all regions of the world. They are fluent in at least five languages, have multiple legitimate interests, and carry valid passports for several countries. Their business is very secretive, yet well-known among their cohorts. Street gangs, including those in the United States, engage in this illicit enterprise by selling weapons for profit. The instant paper describes the international arms trade and identifies some of the major players.

Eden Davis – Liberal Arts
Telling the Whole Truth: The Necessities of Writing the Body and the Rediscovery of the Feminine
Mentor(s) / Sponsor(s): Drs. Barbara Cobb and Cynthia Gayman

For most of history, a history that has been written by men, women have either been ignored or objectified as objects of sexual satisfaction. In the contemporary philosophical work of Luce Irigaray, one sees the necessity of rediscovering the feminine. Irigaray highlights the distinct differences between male and female, suggesting that for most of history, women's liberties have been raped by patriarchy.This doesn't gratify the woman's emotional or cultural identity. For this culture to advance, therefore, new models of sexual identity must be established. Irigaray calls for a method of discovery, l'ecriture feminine or writing the body. This method entails women telling their stories and their experiences. This is so abruptly necessary in order to discover the real, living and breathing feminine. I document how women in the visual art world have and are striving to write the body in order for all to understand what it means to be woman. I trace the roots of feminist art from Kathe Kollowitz to Georgia O'Keeffe and Frida Kahlo. I explore the ways in which women like Judy Chicage, Miriam Schapiro and the artists of the Afro-feminist movement have freed the feminine.

Jessica DeGreve, Marybeth Ewing, Julie Musko, Brittany Prevallet, Jessica Stinton, and Danielle Williams – Communication Disorders
Glendale Place FaBOOlous Halloween Bash
Mentor / Sponsor: Dr. Kelly Rogers

Students enrolled in REC/GTY 520 - Leisure and Aging during the fall 2007 semester were required to complete a 15-hour service-learning project. Students were divided into small groups and assigned to a local provider of services to senior citizens. Members of our group completed a service-learning project at Glendale Place Assisted Living in Murray, KY. The purpose of the project was to provide positive interactions between younger and older populations. In addition, the experience provided an opportunity to integrate knowledge from coursework while helping to diminish stereotypical attitudes related to the older adult population. The main activity of our project was the FaBOOlous Halloween Bash which took place on October 25, 2007, from 4:00 p.m. to 7:00 p.m. During this time, we had several activity stations for the residents to participate in set up throughout the facility. Activities included crafts, cookie decorating, Bingo, and a photo booth complete with Halloween costumes. Our service-learning activity was a positive and rewarding experience.

Matt Dennis – Zoological Conservation
Effects of Water Pollution on the Encapsulation Ability of Dragonfly, Plathemis lydia
Mentor / Sponsor: Dr. Claire Fuller

Many organisms are facing major changes in their environments with respect to pollutants and these pollutants can result in non-viable habitats. Current indicators of environmental quality, particularly in aquatic habitats, focus on the presence or absence of key species: i.e., if such a species has become locally extinct, the water is too polluted. We are looking for a more sensitive indicator of water quality; one that can be easily detected before the indicator species begins to die. We are researching the correlation between immune status of animals and water quality of ponds in different environments. Dragonflies use encapsulation as an immune response to the invasion of parasites in the body. The amount of encapsulation of the parasite can be used as a measure of the immune status of the animal. By injecting a piece of microfilament into a dragonfly larva, an immune response can be induced. The microfilament can then be dissected out of the animal and the amount of encapsulation can be measured. Dragonfly larva were obtained from ponds in different areas with differing water quality. The degree of encapsulation of each individual was measured taking into account the effects of body size on immune function. Once dissected out of the dragonfly, the microfilament was photographed under a 5x objective lens of a bright-field microscope. The photograph was then analyzed using UTHSCSA Image tool for Windows which measures the area of encapsulation in number of pixels. We predict that there will be a negative correlation between encapsulation and water quality, showing that dragonflies undergo immune suppression in conditions of poor water quality. The results found that encapsulation was significantly negatively correlated with the presence of pesticides, and positively correlated with the presence of PCB. Levels of four inorganic elements (Mg, Al, Ca and Cu) were also significantly correlated with the ability of animals to encapsulate the foreign object. These results show that sampling animals for encapsulation may provide an indication of environmental quality before species become locally extinct. The results of this research have established data that will highlight which pollutants are most likely to cause changes in immune response. The next step of this project is to conduct controlled experiments to further test the indicator as a reliable means of predicting water quality.

Adam Duley, Zac Elmore, Mikel Headford, Christopher Muncie, and Nathaniel Phelps – Biomedical Sciences and Biology, Pre-Medicine

Immunocytochemical Distribution of H-K-ATPase Beta-subunit in the Hyperglycemic Mice

Mentor / Sponsor: Dr. Suguru Nakamura

Two proton pumps, H-K-ATPase (HKA) and H-ATPase play an important role in acid-base balance in the kidney. Three H-K-ATPase subunits (HKAalpha1, HKAalpha2, HKAbeta) are expressed in the collecting duct. The beta-subunit is essential for the functional expression of both the HKAalpha1 and HKAalpha2. It has been reported that the HKAalpha1 (gastric) antibody level is increased in type 1 diabetic patients. Glucose stimulates H-ATPase and H-K-ATPase activities and has been demonstrated in the kidney cells. We examined whether hyperglycemia stimulates the HKA beta-subunit in the outer medullary collecting duct (OMCD) in the mouse kidney.The hyperglycemia was induced by an intraperitoneal injection of streptozotocin (65 mg/kg) and monitored for 5 days. The OMCD tubules were dissected and placed on the center of PLL-coated cover glass and covered with a phosphate buffered saline (PBS). The OMCDs were fixed in 4% paraformaldehyde, permeabilized with 0.5% Triton X-100, incubated with a specific monoclonal antibody (HKA beta-subunit, 34 kDa) and stained with FITC-conjugated antibody. In the normal mice OMCDs, the intercalated cells demonstrated the immunocytochemical distribution on HKA that was mainly polarized to apical pole and slightly polarized to basolateral pole. In the hyperglycemic mice OMCDs, there was a diffusely distributed staining throughout the cells. Results suggested that the HKA beta-subunit is stimulated by hyperglycemia in the renal OMCDs. The HKA beta-subunit is likely to associate with the HKAalpha1 and HKAalpha2 under normal and hyperglycemic conditions.

Carrie Elliot, Teresa Ferguson, Daniel Hayden, and David Crouch – Agriculture Education

Dark Fired Tobacco Responses to Different Nitrogen Fertilizers

Mentor / Sponsor: Dr. Iin Handayani

Nitrogen plays an important role for tobacco production. Different fertilizers with various ratios of nitrogen, phosphorous, and potassium were used to improve dark fired tobacco yields. The fertilizers used were Hydro Plex (N-P-K;14-0-14), K Nitrate (N-P-K;13.5-0-45), Ca Nitrate (N-P-K;15.5-0-0), Triple 15 (N-P-K;15-15-15), 21-7-14 (N-P-K) and Am Nitrate (N-P-K; 34-0-0). The fertilizer rates were: 13.1, 13.6, 11.8, 12.2, 8.7 and 5.4 lbs/plot, respectively. The objective of this research was to determine the effect of different nitrogen commercial fertilizers on tobacco's yield and vigor. The results show that there is no signifigant difference among the fertilizers at 5%. The highest average yields were found in Triple 15 (3912 lbs/ac), Ca Nitrate (3882 lbs/ac), and hydro plex (3849 lbs/ac). We found high variability on the total yield under Am Nitrate, Triple 15, and K Nitrate treatments. In conclusion, the fertilizers Hydro Plex, K Nitrate, Ca Nitrate, Triple 15, 21-7-14, and Am Nitrate have the potential to enhance dark fired tobacco yields in Kentucky.

Jake Elliot – Mathematics
A GIS Model of Lyme Disease Risk in Kentucky
Mentor / Sponsor: Dr. Terry Derting

Lyme disease affects many people annually, but data on the impact of Lyme disease in Kentucky are limited. Our objective was to create a GIS model which predicted risk of Lyme borreliosis throughout Kentucky based on presence of Peromyscus leucopus, their immunocompetence, and conditions of the surrounding landscape (i.e. disturbance, land use). Previous research suggests that disturbance, by way of habitat fragmentation, affects immunocompetence. Using GIS and Kentucky GAP data, we identified disturbed and undisturbed habitat patches found within the geographic range of the white-footed mouse, P. leucopus. Patches were ranked based on area, with small patches carrying a higher Lyme disease risk. For specific regions, patchiness, percent area disturbed, and immunity values were calculated to determine a relative risk for Lyme disease. Our results suggested that there is a low to moderate risk of Lyme disease throughout the state of Kentucky with a model accuracy of 59.2%. Our model provides a basemap whose accuracy can be continually improved.

Jake Elliot and Benjiman Tharp – Mathematics
Introduction to Island Biogeography
Mentor(s) / Sponsor(s): Drs. Howard Whiteman and Maeve McCarthy

Island biogeography, a subfield of biogeography popularized by the work of ecologists R.H. MacArthur and E.O. Wilson, seeks to explain the environmental factors that affect the species diversity on an island. The mathematical model proposed by MacArthur and Wilson in 1967 presents a simple allometric relationship between the size of a region and the species diversity within the region. Since its first appearance, the theory of island biogeography has been modified to include fractal measurement of areas and has been applied to nature conservation. In this talk, we will explore the development of the model and its most notable applications and modifications.

Amanda Enochs – Liberal Arts
Climate Change and its Impact on Global Resources
Mentor(s) / Sponsor(s): Drs. Barbara Cobb and Howard Whiteman

Climate change is impacting our world on a daily basis. It is causing economic difficulties and conflicts between countries. This will paper will demonstrate how human involvement is impacting climate change which also is impacting over usage of resources. Do to these facts, countries are in conflict over resources. China is a good example of overpopulation and over usage of resources. Even with current “green” efforts, the resources are in danger of being permanently depleted. Furthermore, the “green” effort may put strain on other resources as well.

Ashley Evans, Eric Gibbs, and Cristin Laird – American Humanics
Reading Rewards Ceremony
Mentor / Sponsor: Dr. Roger Weis

The Reading Rewards Ceremony is an awards ceremony to recognize the six participants in Main Street Youth Center's Reading Program in categories such as "Most Improved in Comprehension," "Most Improved in Speed," and "Most Spirited." There is also an award for the most active volunteer. This ceremony lasted one hour, and all family of participants and volunteers in the Reading Program were invited to attend.
Based on the results of our program evaluations this awards ceremony worked to:
- Increase self-esteem in Reading Program participants
- Eliminate the stigma attached to being in the Reading Program
- Increase awareness of the MSYC Reading Program
- Increase family and volunteer support of Reading Program participants
- Instill a sense of pride in family, volunteers, and Reading Rewards Participants
- Improve attendance of Reading Program volunteers.

This program served as a service learning project in the Youth and Nonprofit 350 class through the American Humanics program. There was a surprisingly good turn out for the ceremony allowing the students to receive the support needed for their success. Reading skills are lacking in students in Murray and Calloway Counties, and the Reading Program at Main Street Youth Center gives one-on-one attention to this problem. The Reading Rewards Ceremony helped improve the morale of the students participating in the program and involved the entire community of families, volunteers, local businesses, and the media.

Sarah Farmer and Sarah Thomason – Mathematics and Biology
The Lotka-Volterra Model
Mentor(s) / Sponsor(s): Drs. Howard Whiteman and Maeve McCarthy

The Lotka-Volterra Equations are used to model intraspecific and interspecific competition. This modified logistic model is further applied to predict outcomes in predator-prey relationships. We will present various examples that demonstrate how this model is applied to species interactions in the biological world. We will also discuss the influence that specific variables could have on the outcome of certain relationships, as well as the impact that this model has had on the understanding of the realm of ecology.

Koji Farrington, Stephanie Morris, and Laura Welborn – American Humanics
Make A Difference Through Mentoring
Mentor / Sponsor: Dr. Roger Weis

As members of Dr. Weis' American Humanics YNL 350 class we, Stephanie Morris, Laura Welborn and Koji Farrington worked with Suzy Crook, the director of Big Brother Big Sister to create a Service Learning Project. Our project focused on increasing the Murray community's awareness of Big Brothers Big Sisters need for more local volunteers. The event our group put together was an information booth which was set up in front of Kroger from 2pm to 5pm on November 11th. We passed out 100 informative fliers to community members. We also offered the opportunity for them to sign up as volunteers for Big Brothers Big Sisters. At the end of the day we have two people who had signed up with us.

Rebecca Feldhaus – Music
Marian Anderson: A Voice for the Seemingly Silent
Mentor / Sponsor: Dr. Sonya Baker

In 1955, the classical singer Marian Anderson was the first African-American to sing a lead role with the Metropolitan Opera. She was not only a pioneer for black singers, but also an advocate for composers of her time. During her performances, Anderson often sang contemporary works, particularly those of black composers, thus allowing the literature to become more mainstream. Fourteen years earlier, in 1941, Anderson won the Bok award for her role as an outstanding Philadelphia citizen. With her winnings, she established an endowment that funded a scholarship honoring exceptional musicians for many years. Those musicians who were honored to win her scholarship secured successful jobs in many fields. This poster, based on research completed at the Marian Anderson Collection at the University of Pennsylvania, explores those musicians who were inspired to success by Anderson.

Brittany Fiscus – History
Queen Marie Antoinette's Pre-Revolutionary Image: A Product of Media Fabrication and Personal Flaws
Mentor / Sponsor: Dr. Terry Strieter

I have been doing research on Queen Marie Antoinette and her relationship with the Pre-Revolutionary press, in an attempt to determine how accurate the media's depictions of her were. I have looked at several primary sources including Revolutionary cartoons, songs, and pamphlets, letters between Antoinette and her mother, and the memoirs of Antoinette's close friends and ladies in waiting. I have also studied such things as the court at Versailles, symbolism in the cartoons and paintings depicting Antoinette, the Revolutionary press in general, and the Revolution itself all in the hopes of giving some insight as to why Antoinette was viewed so negatively by the press. Through my research I have been able to determine that much of what the press accused Antoinette of was either exaggerated or completely fabricated. My research has also led me to believe that while on several accounts Antoinette was innocent of the things the press pinned on her, she did have several personal flaws and an air of disregard that made her an easy target for the press as well as her angry subjects. Ultimately, Antoinette's negative image, whether it was her fault or not, played a key role in the French population's lack of faith in their monarchy. This is important as it was one of many factors that led to the French Revolution. The details of how I came to these conclusions through my research are discussed in a research paper I have written on the subject. I have also prepared a poster and oral presentation that explain my research.

Broadus Fitzhugh – Chemistry
Synthesis and Electro-Optical Characterization of Conjugated Oligomers for Use in Organic Solar Cells
Mentor / Sponsor: Dr. Kevin Revell

The proposed project involves the synthesis and electro-optical characterization of conjugated oligomers to be used in organic solar cells. The process involves piecing together certain monomer subunits in a "mix & match" manner in order to produce an optimum energy bandgap that will allow for efficient charge mobility and transport. This "mix & match" approach allows for accurate size control and great variability. Synthesis of the monomer units involves functionalization of 3,4-dihydroxybenzaldehyde, followed by condensation chemistry of multiple methods. This project could have broad implications in that the organic solar cells to be produced would be efficient and of relative low cost, reducing dependency on fossil fuels. It is the goal to optimize the bandgaps to have the ability to catalyze the photolysis of water to produce hydrogen as a form of energy.

Aimee Flener and Chris Peters – Education
One More for the Road
Mentor / Sponsor: Dr. Howard Whiteman

Our project is regarding the study of road kill through 68/80 in the last 4 miles of LBL. I feel that studying to see what species gets hit the most or why certain species have a higher death rate would be interesting. This study could be used to determine ways to prevent road kill or what time of year certain animals have a higher death rate or where certain species spend most of their time at. This project will display our data on a poster board with the distribution of overall road kill and the breakdown of the species and their tally of deaths.

Annette Fowler – Chemistry
Trace Level Analysis of Polybrominated Diphenyl Ethers in Fish Tissue Extracts Using a Gas Chromatograph-Electron Capture Detector
Mentor / Sponsor : Dr. Bommanna G. Loganathan

Polybrominated diphenyl ethers (PBDEs) are one of the additive flame retardants widely used in plastics, textiles, and in electronic appliances including computers and televisions. Widespread uses of PBDEs have resulted in environmental contamination. Exposure to PBDEs can cause harmful effects in wildlife and humans. Limited data is available on the levels of these compounds in fish tissues and on human exposure via consumption of contaminated fish. In this study a gas chromatograph equipped with electron capture detector (GC-EDC) was calibrated using known concentrations of PBDE standards. Response factors and method detection limits were determined for 12 PBDE congeners. Fish tissues (collected from the Atlantic coastal waters) were analyzed for PBDE congeners and the analytes were quantitified using Excel. The individual and total PBDE concentration data for each fish species were tabulated and compared with literature PBDE data of fish from other regions in the United States. This study provides baseline data on PBDE levels in the fish from Atlantic coastal waters off Savannah, GA. Future monitoring studies on PBDEs is essential in order to determine bioaccumulation, biomagnefication and effects of these compounds in wildlife and humans. Results revealed that PBDEs 47, 99, 100 and 28/33 were frequently detected in fish samples. Inter-species and intra-species differences were noticed. Accumulation pattern of the PBDEs in fish tissues showed the following order 47>99>100>28/33>66.

Kathryn French – International Affairs
An Ideological Dispute
Mentor(s) / Sponsor(s): Drs. Michael Basile and Farouk Umar

In an increasingly globalized world where natural resources are being quickly depleted through nearly exponential corporate growth, a larger percentage of indigenous peoples continues to live in natural, hither to remote areas in relative abundance and self-sufficiency. Their success in doing so may be a result of their ability to live cooperatively in and with the natural world, rather than exploiting it. Corporations, backed by global structural instruments such as the World Trade Organization, International Monetary Fund, and World Bank are exploiting native populations' land and resources, expropriating and mass marketing their traditional knowledge, and robbing them of their health and culture. This study examines ideological differences between capitalist corporations and indigenous peoples, as well as how corporate takeover of indigenous land, resources, and knowledge affects us all.

Sarah Fuller, Jennifer McPherson, and Brett Taylor – History, Organizational Communication, and History
A Girl's Best Friends: The Science Behind Diamonds and Chocolate
Mentor / Sponsor: Dr. Howard Whiteman

It has long been said that "diamonds are a girl's best friend" and that chocolate makes us feel good. Yet, what is it about diamonds that makes them sparkle, and why does chocolate bring about happiness? There are scientific answers to both these questions and many more as one investigates the science behind a girl's best friends, diamonds and chocolate. Diamonds and chocolate each have a unique scientific history and cultural significance that are worthy of exploration. This presentation will explore the psychological lure of chocolate and diamonds for women, studying the scientific makeup of chocolate and the composition of diamonds. One will learn why women crave two items: one that can easily be devoured in just a few seconds, and another that can withstand the tests of time and strength.

Stephanie Galla – Wildlife Biology
Taxonomic Status of Large-leaf Mulberry in Western Kentucky
Mentor / Sponsor: Dr. Dayle E. Saar

Unusual individuals of what appear to be Red Mulberry (Morus rubra: Moraceae) are frequently observed growing in mesic woodlands of western Kentucky. Leaf size is 23-38 cm in length, whereas "normal" leaves are about 7.5-10 cm. Initial observations suggested there is a genetic factor to this unusual leaf morphology, as opposed to simply a localized environmental influence. The objective of this investigation is to determine the proper taxonomic status of this large-leafed mulberry. Taxonomic status will be based on its morphology, natural history, chromosome number, and molecular markers. Based on a search of herbarium specimens, these trees also occur in central Kentucky, southeastern Missouri, northwestern Tennessee, and southern Illinois. Plant material for morphological, genetic, and cytological data was collected from various locations in Kentucky, Tennessee, and Illinois. DNA from large-leafed trees was sequenced and is being compared to normal-leafed individuals of M. rubra and the non-native M. alba, which also occurs throughout western Kentucky. Additionally, sequences are compared to GenBank accessions from numerous species of Morus. At this time, it appears that the large-leafed trees are, at a minimum, a recognizable variety of M. rubra. Because this tree occurs frequently in western Kentucky, it is an integral part of the ecosystem, providing resources such as food, shade, and structure. It is important for wildlife biologists to recognize and incorporate it into habitat management plans.

Rebecca Gardner – Geoscience
Accessing Forest Health and Vegetation Cover in the Adirondack State Park with Remote Sensing
Mentor / Sponsor: Dr. Haluk Cetin

With the increasing governmental and environmental pressure of recent decades the Adirondack forest of upstate NY has undergone considerable land-use and environmental policy change. As the only state park that still retains residents, and consists of private and public land within its borders, the health of its varying ecosystems is of great importance. This project is an analysis of the health of the Adirondack forest by using remote sensing technology and multi date Landsat-TM images. By utilizing normalized difference vegetation indices (NDVI), derived from reflectance in near infrared and red wavelengths, from multi-date images we can estimate vegetation cover within the region. The project seeks to use the NDVI results to determine potential land cover changes as well as analyzing the region for vegetation stress, die off, and any patterns that would indicate stress or damage to the parks ecosystem.

Carrie Gottschalk, Leonard Matlock, and Rebecca Riggs – American Humanics
Pet University
Mentor / Sponsor: Dr. Roger Weis

Pet University is a half-an-hour long presentation given by American Humanics students from Murray State University. This interactive seminar is a dog bite education program through the Humane Society of Calloway County. The college students will be teaching the children how to safely approach a dog, the warning signs of different dog behaviors, what to do around a stray dog, and what to do if you ever get bitten. The goal of this program is to inform children about the risks and potential dangers of dog bites. The reality is, every year 4.5 million people are bitten by a dog and 60% of those cases are children. Pet University one time session was held in Mr. Blanchard's second grade class at Murray Elementary on November 16, 2007 at 11:15am. The format of Pet University consisted of a video called "Bow Wow Ow" which demonstrated to the students some things to remember about approaching strange dogs. The children acted out different scenarios to show the wrong way and the right way to approach a dog to reinforce our lesson. Pet University also administered a pre and post test by a show of hands to see if the students had learned from our presentation. Next, the students were given certificates upon completion of Pet University and they got to pet a Therapy dog and a Therapy cat. Through programs like Pet University, we hope to start reducing the amount of children getting bit by dogs each year.

Ashley Hagan and Todd Schoborg – Computer Science, Mathematics, and Biology
Microsatellite Analysis of a Polymorphic Population of Tiger Salamanders, Ambystoma tigrinum nebulosum
Mentor(s) / Sponsor(s): Drs. Nicole Gerlanc and Howard Whiteman

The ultimate goal of this study is to assess fitness trade-offs in a polymorphic population of Tiger Salamanders, Ambystoma tigrinum nebulosum, using six microsatellite sequences as genetic markers in assigning parentage. Sexually mature male and female salamanders were placed in mesh “clutch bags” during the breeding seasons of 2005 and 2006 at the Mexican Cut Nature Preserve near Gothic, Colorado and allowed to breed. Tissue samples from the known mother and possible father, as well as egg samples from the offspring, were then collected. Twenty-five clutches from both metamorphic and paedomorphic individuals were used in the analysis. Alternative alleles for each microsatellite locus ranged from 2-3. We hope to use these markers to assign parentage correctly for the known parent/offspring combinations, with the goal of using the markers to assign relatedness in the population as a whole using the same methods.

Nicole Allyn Hayek – Art
The Wolf's Grim Reaper
Mentor / Sponsor: Cindy Clemson

Most of the canvas is occupied by a wolf's eye. It's in the reflection of the eye that the audience sees the reflection of a hunter's bush plane. Wolves in Alaska are being killed for game because the government thinks that there are far too many of them. In order to allow hunting of the wolves there, Alaska's government has exposed a loophole in the "Endangered Species Act". Since there is so much ice and snow covering the ground, bush plane owners sell tours to eager hunters. This is called "aerial hunting" which is outlawed in the Endangered Species Act. While the state of Alaska, by itself, has an over-population problem with the wolves, the rest of the United States does not. Congress, just this February, passed a bill that liquidates Yellowstone National Park's protection of the wolves. What few wolves living in the Rocky Mountains are in grave danger of being wiped-out. I'm not too sure why wolves are being slaughtered all of a sudden, but all I do know is that I love wolves... and I tired of seeing them being killed. Maybe my artwork will move somebody to see their innocence in the same way that I do.

Meagan Hensley – Liberal Arts
The History of Wrather Museum
Mentor(s) / Sponsor(s): Dr. Barbara Cobb and Kate Reeves

This presentation will be centered upon my senior thesis paper which will discuss the history of Wrather Museum on the campus of Murray State University and its importance to the university, community, and Jackson Purchase area. After the paper is written it shall serve as the only complete written record on the subject and can be used to educate visitors on how and why the museum came into existence. Using museum objects and photographs I will also be able to create a visual exhibit that may accompany the paper. Photographs from the exhibit will be used at part of a powerpoint presentation.

Lauren Hohman, Kara Mantooth, and Martha Mary Scherer – American Humanics
Needline
Mentor / Sponsor: Dr. Roger Weis

The program that our group chose to put on was a scavenger hunt for Needline. The scavenger hunt was open to any organization on Murray State's campus that wanted to participate. The purpose of this event was to raise can goods and hygiene products to help serve people in the Murray-Calloway County area. The mentor for our project was Tonia Casey. Ms. Casey works at Needline and was able to assist us in designing out the program plan. She also was able to give us a list of item that Needline needed at the time. All of us had prior experience working with Needline which made the process much smoother. The program took place on November 18, from 5-6:30pm, in front of Carr Health building on the campus of Murray State University. Each participate was divided into teams of 2-5 people. After everyone was split each team was handed a list of items they were to find within Murray-Calloway County area. Each team's goal was to gather all of the items on the list and arrive back in front of Carr Health building within the allotted time. The first team back received a prize. Being that it was our first time putting on this program it was not as successful as we had hoped but even with only a small number of participates we still managed to raise over 140 can goods and hygiene products for Needline. We enjoyed organizing this program and we hope that people continue to use our ideas in the future.

Robert Holland – Economics
Reality Killed the Video Star
Mentor(s) / Sponsor(s): Dr. David Eaton and David Shidiler

This paper seeks to explore the continuous degeneration of the youth culture in the United States by observing the social and economic impacts of reality based programming broadcast by MTV and the popular media. Through basic observation of cultural norms, one may be able to conclude that reality TV has instilled certain behaviors and attitudes in young people. The youth of this country appear to be segmented and targeted via cognitive social frame works that effect consumptive behavior and spur material fetishism, perhaps leading to a widening class gap. The goal of this project is to exploit the growing problem of individualism being substituted for immoral conformity to cultural normality's.

Desirae Holloway – Psychology
Perceptions of Self and Friends
Mentor / Sponsor: Dr. Paula Waddill

Self-perceptions are important in becoming confident to get jobs, to do projects, to find a mate, to better yourself and basically to succeed. The study consisted of 60 Murray State University participants. The purpose of this study was to investigate to see if how similar we are to our friends, how we perceive social support from our friends, and how we perceive our friends based on optimism and altruism have anything to do with how we perceive ourselves. In order to measure self-perceptions, participants were measured on self-esteem, self-efficacy, perceived social support from friends, perceived level of optimism and altruism of friends, and similarity to friends. Results indicated that the higher the self-esteem of the individual, the higher the self-efficacy tends to be. Going along with this, it was also found that the more similar we are to our friends, the higher we tend to rate our self-esteem. Results also indicated the more we rate our friends on perceived social support, the more we tend to be similar to our friends, rate them higher on optimism and altruism. These results may have important implications in developing self-esteem programs in schools.

Chris Horton – Economics
Effects of Cigarette Taxes on Consumption
Mentor / Sponsor: Dr. David Eaton

This paper will examine the effects of an increased state cigarette tax on consumption. In particular the paper will examine whether or not increased taxes lead to a drop in the consumption of cigarettes. The paper will also examine the impact of increasing taxes in one state and its affect on revenue in bordering states. To answer this question I will use data regarding cigarette consumption per capita by state, cigarette tax revenue by state, and state tax changes.

Jamie Houston – Middle School Education
Birds and Campus Windows
Mentor / Sponsor: Dr. Howard Whiteman
The study is primarily about the amount of birds that are running into windows on campus due to the few measures that Murray State University has taken to protect local avian wildlife. During Monday and Wednesday afternoons Jamie Houston and Logan Smith search for avian corpses in places that are primary locations for birds to run into windows on campus: the breezeways attached to Old Clark College, Richmond College, Franklin College, Springer College, and the Lowery Center as well as the spacious windows of Winslow Dining Hall and Faculty Hall. After the corpses are found, they are documented and entered into a database to reveal location, date found, and, if possible to discern, the name of species. This routine will be continued up to seven weeks (with the exception of spring break). At the end of the study, we will present our findings to the University and, depending upon the results, request that more measures will be taken to help protect the local birds that have been flying into campus windows.

Christina Jackson, Andrew Mattmiller, Derek Nance, Keely Netz, and Kevin Witbrodt – Biology and Chemistry
Genetic Analysis of Germline Development and Nuclear Division in the Fruit Fly Drosophila
Mentor / Sponsor: Alexey Arkov

Many genes in the fruit fly Drosophila are very similar to human genes. Therefore, it is likely that studying genetics and cell biology of Drosophila will help to understand genetic and cellular mechanisms in humans. Our study focuses on development of germ cells and nuclear division and migration in Drosophila embryos. Germ cells form early during embryogenesis and eventually give rise to sperm and egg. Therefore, germ cells are the ultimate stem cells responsible for generation of entire organism. In order to identify new genes required for germ cell formation we performed a large genetic screen and searched for mutants that show defects during germ cell development. As a result of this screen, we identified several groups of mutations that affect novel genes. Some mutations directly influenced germ cell formation and other mutants failed to form germs cells because of defects in nuclear division and migration of the nuclei to the embryonic site where germ cells form. We are in the process of characterizing these mutants and the results will be reported. In addition, we are identifying the primary metabolic pathways utilized by germ cells for energy production. Understanding the genetic mechanisms of germ cell development and nuclear division may shed light on the biological causes of human disorders such as infertility and cancer.

Nathan Jaco – Public Administration
Impact of Immigration on Labor Supply, Wages and Employment in the Graves County Economy
Mentor(s) / Sponsor(s): Drs. Michael Basile and Seid Hassan

The immigrant population has a significant impact on the macroeconomy of the US, particularly local communities with substantial contributions of international non-native residents. The immigrant community in a local area can have a major effect on the perceptions of internationalization in that community, and the aggregation of those effects from a variety of communities can set the tone of domestic attitudes towards international issues. The hypothesis of international economic theory is that if there is a significant increase in labor supply in some labor market due to an influx of immigrants then there will be a decrease in overall wages in that market and an increase in domestic unemployment in that market. However, empirical tests have not yielded results which support that hypothesis and conclusion. By determining if the influx of immigrants into Graves County has had a negative impact on wages and a positive impact on domestic (local) unemployment, one can determine the validity of arguments for/against immigration.

Matt Jacobs – American Humanics
Jefferson Lady Bobcats
Mentor / Sponsor: Dr. Roger Weis

The project in which I helped form was a girl's basketball team. I believe in making a difference in the lives of young people. What better way to make an impact on someone's life than coaching for a basketball team. Not only are they learning the in and out of basketball but also the fundamentals of life. Basketball is all about sharing and working together. These girls will not only use this knowledge on the court but in their everyday life as they grow to be mature adults. In this project I talked with these young ladies about the importance of nutrition, staying away from drugs and alcohol, education, and sportsmanship. After practice we would all sit down and discuss these major issues. I know I made a difference in their lives just by the way they responded. Not only did they learn from this experience but I did as well.

Casandra Jarred – Sociology
Environmental Injustice
Mentor / Sponsor: Dr. Lillian Daughaday

Environmental crime is a serious issue plaguing our society because the effects are far reaching, dangerous, and costly. Like other types of white collar crime, many questions are raised as to what can be done to address this problem. To properly deal with the issue of environmental crime, one must consider the causes, analyze the existing policies, and develop new strategies to approach this growing trend. In this presentation, I will discuss the role society plays in the institutionalization of environmental crime, the shortcomings of the EPA in prosecuting offenders, and possible solutions to these inadequacies.

Andrew Johnson – Chemistry
Synthesis of 2-Aminopyrimidines as Probes of Bacterial Resistance
Mentor / Sponsor: Edie J. Banner

Due to the overuse of antibiotics to treat infections, bacteria have developed a variety of resistance mechanisms. In the mid 1950's aminoglycoside antibiotics were introduced to combat a variety of clinical infections. However, this class of antibiotics has been rendered ineffective by modifying enzymes expressed in various pathogenic bacteria. One such enzyme, APH(3)-IIIa, operates by a transfer mechanism in which a phosphoryl group from ATP is covalently attached to the aminoglycoside antibiotic. In order to combat this method of bacterial resistance, it is crucial to understand the ATP binding site of APH(3)-IIIa. A series of rationally designed chemical probes have been designed to examine the ATP binding site. Such studies of the active site will provide an understanding of the enzyme's structure and mechanism which will allow for the rational design of potential inhibitors of APH(3)-IIIa in hopes of regaining the clinical effectiveness of aminoglycoside antibiotics and combating antibiotic resistance. The synthesis of two classes of the 2-aminopyrimidine class of compounds toward this goal is described.

Caroline Jones – Political Science
An Examination of Party Positions and Valence Issues of the 21st Century
Mentor / Sponsor: Dr. Mark Wattier

The purpose of this project was to examine and assess the positions (For and against) and valence issues (how to address topics of interest or conflict) as present in the party platforms of the two major American Political Parties. The included documents are the Democratic National Platform of 2000 and 2004 and the Republican National Platforms of the same years. The paper presents points of interests and examines changes and differences between and with parties over time.

Cristin Laird, Austin McCuiston, and Sarah Peddie – Chemistry, Exercise Science, and Psychology
An Inside Look into the Medical World of Grey's Anatomy
Mentor / Sponsor: Dr. Howard Whiteman

To find how the medical world is portrayed on a TV show, we focus on the inner workings of Grey's Anatomy. In this program, actors have taken rounds with real doctors and watched multiple surgeries, learning how they needed to act in order to portray what they had observed. A medical producer was used during the shows to much sure the wording of anything medical was correct, to make sure the performances of the surgeries were done correctly, and to make sure the surgeries were believable. This medical producer also worked with the special effects crew to make sure the props used for organs in the surgeries looked real, and was available for the actors to ask questions about the surgeries and anything medical they did not understand. A medical researcher was also used in the show to make sure things were factual. The researchers made sure the cases that occur on the TV show can actually occur and also develop precedent cases for the writers to use in the script. Thus, at least in this program, actors and producers go to great pains to accurately portray science and technology within their profession.

Kristen Landolt – Water Science
Morphological and Behavioral Responses to Predator Presence in Ambystoma talpoideum
Mentor / Sponsor: Dr. Howard Whiteman

Phenotypic plasticity allows one genotype to exploit and adapt to a greater range of environments by expressing varying phenotypes. Previous studies have shown that larval amphibians exhibit induced morphologies and behaviors in response to predator presence. Facultative paedomorphosis in salamanders allows individuals to attain sexual maturity in either the terrestrial metamorphic phenotype or the aquatic "larval-type" paedomorphic phenotype. Predator presence may influence paedomorphosis by inducing behaviors and morphologies that affect individual growth rates, which are thought to be important in metamorphic timing. This study compared the morphological and behavioral responses of larval mole salamanders (Ambystoma talpoideum), a faculatively paedomorphic salamander, to three predators (bluegill, Lepomis macrochirus; dragonfly naiad, Anax junius; and paedomorphic A.talpoideum) and examined the effects on growth rates and the expression of paedomorphosis. Larvae in the bluegill treatment responded by decreasing activity levels while larvae in the conspecific treatment increased activity. Larvae in the bluegill and odonate treatments were significantly larger than larvae in the conspecific treatments. Odonates also induced significantly larger larvae than controls. Bluegill and odonates induced longer and higher tails than conspecifics. Growth rates were higher in the bluegill and odonate treatments than the control and conspecifics. There were no differences in the expression of paedomorphs across treatments. Results suggest that A. talpoideum has evolved behavioral and morphological plasticity in response to predators. In this population, however, other factors may have a greater influence than predation risk on the expression of paedomorphosis.

Sarah Landolt – International Affairs
A New Generation of Turkish Immigrants in Germany: Rebels Without a Cause Searching for Identity
Mentor / Sponsor: Dr. Michael Basile

This study focuses on the new generation of Turkish Immigrants living in Germany and their lack of closure finding a place in society. The previous generations of "Gearbeiter" Turkish immigrants intended to return to Turkey. However, due to the instability of Turkey's economy and politics, these immigrants were forced them to remain in Germany for an expended period of time. Hence, these parent generations steadfastly hold to their Turkish identity, trying to inculcate Turkish nationalism and culture on their children. Yet, their children have had almost no experience or direct connection with Turkey and have grown up in a Germany that just recently accepted those born in Germany as citizens. Since they are not of German blood, they still can not legally be deemed "Germans." As a result, there is still a strong clash in acceptance of Turkish Germans, which has intensified in the wake of a post-911 Islamic fear post and Turkey's persistent attempt to gain EU membership. This lack of acceptance has subjected this young generation to violence, extremist groups, dropping out of high school, and high unemployment. This study further explores cultural dilemmas and problems facing this generation living in Limbo.

Carrie Lardner, Bre Sykes, and Erica Thweatt – Sociology and Organizational Communication
Pets Are People Too!
Mentor / Sponsor: Dr. Roger Weis

Pets Are People Too is a one hour long activity with college students from Murray State University speaking to grade school children in the second grade about pet awareness,and what it means to be a responsible pet owner. Pets Are People Too allowed college students to apply their knowledge on the principles dealing with the Humane Society of Calloway County in dealing with the every day struggles that animals go through on a regular basis. This program taught the students how to overcome these struggles by explaining basic needs that animals need just like human beings do every day in order to survive. The format of this program consisted of an hour long presentation involving discussions and activities for the children. College students presented the information in such a way that the children would fully comprehend what was being said. Basic needs was the base of the presentation touching on how food, water, shelter, veterinarian care, exercise, and love were all key elements in maintaining a healthy and loving animal the right way. The presentation followed by playing a game of tic tac toe on the board to recap the main themes as discussed previously so that the children could apply what they had learned. At the end, coloring sheets were passed out, and a group picture was taken with the pet therapy animals.

Ryan Leach – Psychology
Changes in Alcohol Perceptions Based on Current Usage
Mentor / Sponsor: Dr. Paula Waddill

I tested a large group of students to see if the amount of alcohol a student used had any relationship with the degree to which they changed their alcohol use perceptions when presented with alcohol related information. A pretest survey was administered which measured alcohol use and the perceived use of alcohol by the typical Murray State student. Next, one of three PowerPoint presentations was shown: the control group saw unrelated information; the first experimental group received information about general college life, including the actual level of alcohol use; the second experimental group received a presentation that only covered information related to alcohol. This was followed up with another survey measuring the new level of perceived use. Those who viewed the experimental presentations changed their views about alcohol significantly more than the control group, and the first experimental group changed significantly less than the second experimental group. Those who drank more changed their perceptions more than lighter drinkers. The possible interaction between alcohol use and presentation format will be discussed.

Ryan Leach – Psychology
Social Norming vs. Personal Alcohol Consumption
Mentor / Sponsor: Dr. Paula Waddill

The purpose of this study was to find out if the effectiveness of alcohol social norming campaigns might vary as a function of participant's own drinking behavior. The study involved 65 participants, all of whom were students at Murray State University. A pretest was administered which included questions about the perceived use of alcohol of the typical Murray State student along with filler questions about other traits. Next, a PowerPoint presentation was shown that for the control group gave unrelated information about college funding and expenditures, but for the experimental group provided information about general college life, including the actual level of alcohol use. This was followed up with a posttest that included questions about level of perceived use of alcohol and other filler items. Participants were also asked about their own level of alcohol use. Those who viewed the experimental presentation changed their views about alcohol significantly more than the control group. Those in the experimental group who drank more tended to change their perceptions more than the lighter drinkers, but there was not relationship between drinking and level of change for the control group. The results may have implications for the effectiveness of social norming programs, especially for heavy drinkers.

Laurie LeCompte – German and Applied Mathematics
A Comparison of Franz Kafka's "Die Verwandlung and Günter Grass' Die Blechtrommel"
Mentor / Sponsor: Dr. Meg Brown

The literature that reflects a time of crisis provides an important interpretation of history and the human condition in general. During the period of Expressionism and World War II, Germany was immersed in experiences of devastation beyond comprehensibility. The trauma of these two eras was separate, but experienced similarly by Kafka and Grass. Their works not only encourage a connection with a time and culture, but aid readers in experiencing the authors' messages deeply and meaningfully. Through their profound word choice and intriguing structure, these authors offer an enlightened exploration of the tragic events and the meanings reflected in societal practices. The altered states of the main characters in Kafka's *Die Verwandlung* and Grass' *Die Blechtrommel*, along with their control struggles, suggest comparable feelings, relayed using analogous techniques. Ironically, through excessive ambiguity and chaos the authors are able to successfully capture the precise essence of the times. This comparison will explore the parallels and offer an interpretation of techniques, motives, and meaning found in these works.

Renee Levesque and Kelsey Nelson – Biology
A look at Enzyme Kinetics; the Michaelis-Menten Equation
Mentor(s) / Sponsor(s): Drs. Maeve McCarthy and Howard Whiteman

Enzymes are proteins that convert substrates into products and control the rate of reaction. Enzyme-catalyzed reactions provide the basis for most of the processes in a biological cell. The Michaelis-Menten Equation relates the concentration of the substrate and the maximal velocity to the instantaneous rate of reaction. This equation has allowed a better understanding of enzyme reactions and its derivations have been used to include affects of other variables.

Theresa Luebbers – Music Education
Back from the Underworld: The Recurrence in Opera of the Orpheus Myth
Mentor / Sponsor: Dr. Scott Locke

The Greek myth of Orpheus and Euridice has appeared numerous times in the world of music - most especially in the musical genre of opera. From the first operas ("L'Euridice" by Peri and Caccini) to the opera that firmly established opera as a musical genre (Monteverdi's "Orfeo") to Gluck's later quest to return opera to its more natural roots ("Orfeo and Euridice"), the myth of Orpheus has been present at the turning points in the history of opera. This presentation will explore the reasons for the reappearance of Orpheus at these critical times and why composers throughout history have turned to this Greek myth and have given Orpheus and Euridice constant rebirth on the operatic stage.

Theresa Luebbers – Music Education
"Keeping up with the Joneses": A Look into Inarritu's Film "Babel"
Mentor / Sponsor: Dr. Reika Ebert

Alejandro Inarritu's film "Babel" explores the language and culture that separate the people of the world from one another. It displays the lives of four different groups and four different cultures and how, in one remarkable event, the lives of all are interconnected. This presentation discusses information from the film and delves into how "Babel" shows that, with the differences in culture and language around us, it is only by stripping ourselves down to our most basic selves that we are able to see beyond culture and into the humanity that joins us all together.

Bret Massey, Cathy Pinnegar, and Jordan Wilkins – Human Development and Leadership, and Integrated Studies
Reading for the Ages
Mentor / Sponsor: Dr. Roger Weis

Reading for the Ages is a two hour long session with Murray State University students reading to participating senior citizens at the Parkview Nursing Center. Reading for the Ages allows these senior citizens to enjoy company and activities that they usually would not have experienced. Overall, this program gave the participants something to look forward to. The format of the program is three individual sessions that last for approximately two hours each. At the first session, students read Christmas poems and quotes. The second session included Christmas themed stories. Lastly, the third session covered stories from the daily newspaper and current events. These individual sessions brought the college student body close to the elderly. Participants of this program experienced a new regiment that allowed them to enjoy themselves and be given individual attention that made them feel valuable. Members of the Parkview Nursing Center looked forward to activities brought to them by Reading for the Ages. Reading for the Ages also allowed the Murray State students feel that they made a positive influence on the lives of those who participated in this program.

Shannon McGregor – Archaeology
Microartifact Analysis of Mississippian House Floors
Mentor / Sponsor: Lara Homsey

The analysis of microartifacts can give important information not always visible in the archaeological record of the larger artifacts. Microartifacts can give clues about the daily life of prehistoric peoples, such as what they were doing in their homes and where in the homes they were doing these things. Just as our homes today are divided into different rooms for different activities, the study of microartifacts can tell us how these ancient people divided their homes into "rooms" for different activities, although there were no walls separating these rooms. For instance, certain areas of these homes were reserved specifically for storage, some areas were specifically for food preparation, etc. Larger artifacts do not always tell us where what activities were performed. Microartifacts, on the other hand, are much smaller and tend to be found exactly where they landed when they fell, providing much more in-depth information than many larger artifacts can provide since the larger artifacts are much more easily moved from place to place.

Cara McHugh – Theater and Political Science
Tooth and Nail
Mentor(s) / Sponsor(s): Jonathan Awori and David Balthrop

This poster is a visceral representation of the dramaturgical preparation for the play "Tooth and Nail". The poster was utilized in the rehearsal process to visually show images to the actors of South Africa during the phases of apartheid. The poster was later used to set the beginning mood in the hallway for audience members before they were seated. The poster includes literature, important leaders, outstanding individuals, and the four distinct eras of apartheid in South Africa.

Megan McMaster – Political Science
Primaries and Caucuses: Comparing and Contrasting the Campaign Strategies
Mentor / Sponsor: Dr. Ann Beck

In the United States, two forms of nomination are used to choose a candidate for the Republicans and Democrats. In states like Iowa and Nevada, caucuses are used to choose the preferred candidate, where as in most states primaries are the preferred method of nomination. States that use primaries are further broken into two segments based upon the use of open primaries versus closed primaries. Because of this fact, candidates must strategically campaign in different states based upon the rules that each state nominates its candidate by and by the expectations of the residents of the state. In my oral presentation at scholar's week I will present my findings about how candidates campaign differently in states that use caucuses from states that use primaries. Because policies and rules differ between states and parties, it will be most beneficial to focus on only a few states in the nation, for example Iowa and New Hampshire. Most of my examples will come from the presidential candidates of the 2008 election. Other central questions will include: how did these candidates make use of the internet, television, radio and other technology to gain support and was the use of this technology different between primary and caucus states? Did the use of mailings, visits to the state, and other more traditional forms of campaigning seem to differ based on the type of state that the candidate was campaigning in? I will also provide an overview of policies of basic rules of caucuses and primaries.

Nicholas Miller – International Affairs
Conflicts and Cooperation Between the US and the Former USSR: Will Another Cold War be a Possibility?
Mentor / Sponsor: Dr. Michael Basile

For fifty years the United States fought an ideological struggle for the fate of mankind with the Soviet Union. Now, fifteen years after the dissolution of the Soviet Union, how has the United States relationship with Russia and the former Soviet Union changed? Are we still mired in a newly reconstituted Cold War? In order to answer these questions, a literature review of six books and several journal and news articles was used. From this study, I conclude that the United States and the former USSR are not embroiled in a new Cold War. The last eight years of Putin's rule has seen an escalation in anti-American rhetoric and posturing, however this is nowhere near the Cold War level. Instead, this period merely represents a calm in the storm. Whether that storm will create hostilities anew or a liberal, democratic Russia is for time to tell.

Marla Moore, Kirby O'Donoghue, and Tyler Powell – Agricultural Education, Graphic Design, and Industrial and Engineering Technology
Growing Up
Mentor / Sponsor: Dr. Howard Whiteman

Our project focuses on the limitations of modern construction capabilities, designs and materials involved in building skyscrapers, as well as alternative used for such structures. Every modern industrialized cityscape includes skyscrapers, and the tallest one in the world today is the Taipei 101 in Taipei, Taiwan, standing 509 meters (or 1,671 feet) high. We explore exactly how much taller humans can possibly build a skyscraper, and whether or not an atypical design (i.e. conical, cylindrical or pyramidal) would be more efficient and stable than today's rectangular-based skyscraper designs.. Our project also considers how to create buildings out of materials that will provide opportunities for agriculture. With farmland becoming more and more scarce and general practices negatively altering the landscape, we will explore the use of modern knowledge and technology to grow mass quantities of crops in a building that can withstand Mother Nature and then some. This would open up the door for greater ethanol production, greater conservational practices, and greater research and control over the crops produced.

Eric Morris – Geosciences
Improving Land-Use/ Land Cover Classification Accuracy with Shadow Removal
Mentor / Sponsor: Dr. Haluk Cetin

After examining a multitude of studies involving shadow removal and various aspects of the removal process, it became clear that shadow removal is important for Land-Use/Land Cover (LULC) classifications. There are an array of techniques which can be implemented; however, this study tackles one aspect of shadow removal involving Erdas IMAGINE. By using spectral enhancements, such as ratio technique and IHS transformation, to reduce or alleviate the shadow cast on the north shores of Kentucky Lake in Landsat TM data from 2006 the current shadows are classified incorrectly therefore impairing the results of the LULC classification. Ongoing analysis has yielded the spectral values on the north shores to be substantial lower than suspected due to the shadowing effect of hills and existing tree lines. Therefore, it is the goal of the study to improve classification accuracy through the use of spectral enhancement techniques and comparing the results.

Holly Mowery – Chemistry and Biology
Pharmaceutical and Illicit Drug Levels in Murray Wastewater Treatment Plant Samples
Mentor / Sponsor: Dr. Bommanna Loganathan

The presence of pharmaceutical and personal care products (PPCPs) in the environment and their possible impact on wildlife and human health is an emerging area of research. The objective of this study was to determine the contamination levels of macrolide antibiotics and illicit drugs of interest in wastewater treatment plant samples from Murray, Kentucky. The water samples were collected and analyzed for azithromycin, clarithromycin, methamphetamine and MDMA using liquid chromatography-mass spectroscopy (LC-MS). The concentrations varied widely, from 4 to 282 ng/L, <1 to 112 ng/L, <1 to 34 ng/L and <1 to 44 ng/L for azithromycin, clarithromycin, methamphetamine and ecstasy (MDMA: 3,4-methylene dioxymethamphetamine), respectively. Azithromycin was consistently detected in almost all influent and effluent samples. Urobilin was also detected in most of the samples analyzed with concentrations ranging from <1 to 39,573 ng/L. In general, influent samples contained higherconcentrations of analytes than effluents. Based on the daily flow rates and mean concentrations of azithromycin, the estimated mean discharge of total azithromycin to Bee Creek, which joins Clarks River, was 215.3 mg/day (range 63.1-397.7 mg/day). Removal efficiency of the analytes in these wastewater treatment processes were in the following order: MDMA > Urobilin > methamphetamine > azithromycin with percentages of removal of 100%, 99.9%, 54.5% and 47% respectively, indicating azithromycin and methamphetamine are relatively more recalcitrant than others, having potential for harmful effects in receiving waters. This study shows that unused or expired pharmaceuticals should not be flushed into water systems due to their persistence through wastewater treatment processes.

Sarah Norris – Spanish
Global Issues for Women in the film "Volver"
Mentor / Sponsor: Dr. Janice Morgan

“Volver”, a film by Pedro Almod’var, reminds audiences of the seemingly impossible struggles women face around the world, and the film emphasizes that these struggles are global issues. Through strong female characters, “Volver” addresses the global atrocity of sexual violence against women as well as the issues of single parenthood, poverty, and infidelity. The women of “Volver” demonstrate strong, admirable responses to the struggles they face, and they serve as an inspiration to all women who deal with the same issues. The issues the women face in the film are not unique to women in Spain, but rather, they are global issues that need to be addressed. The sexual violence, single parenthood, poverty, and infidelity portrayed in “Volver” are not simply “women’s issues,” but they are issues that affect every human around the world.

Kaito Ofuchi – International Affairs
A Turning Point of Tanzania: Washington Consensus
Mentor / Sponsor: Dr. Michael Basile

This paper is about the change of Tanzania and the change of its social structure, condition, and welfare during globalization era. Also, this paper tries to examine influence of globalization and Washington Consensus in Tanzania by verifying those changes. Tanzanian first President, Julius Nyerere advocates Arsha Declaration in 1967. This policy attempted to have independent economy and self-reliance. However, Arsha Declaration declined, and foreign direct investment had been flowed during 70's and 80's. However, those foreign direct investments and free market economy influence Tanzanian society both positively and negatively. Those influences are expressed in Washington Consensus, which International Monetary Found proposed to deal with debtor countries that Tanzania is included. Finally this paper tries to suggest how we, as developed countries, should aid them.

Ryan Parish – Geosciences and Geoarcheology
Chert Sourcing Investigations of the Lower Tennessee and Cumberland River Valleys using Visible/Near-Infrared Reflectance Spectroscopy
Mentor / Sponsor: Dr. Haluk Cetin

Throughout prehistory, people have used stone to craft tools necessary for survival. One of the most common materials exploited by prehistoric people was chert. Its ability to fracture predictably and hold a sharp edge made it a valuable resource. In this study chert is defined as; any sedimentary siliceous rock predominately composed of microcrystalline quartz that exhibits concoidal fracture, excluding chalcedony. The properties described here make chert highly suitable for stone tool manufacture. This study focused on the sourcing of chert defined as; the ability to trace a chert artifact from its archaeological provenience to its geological origination. Research studies in this area may allow archaeologists to map out the spatial distributions of chert materials promoting theories based on migration patterns and trade networks. Previous chert sourcing studies have utilized geochemical and petrographic methods. However, this study focused on the application of spectral techniques to the sourcing of chert materials. Spectroradiometers have been utilized in the field of geology to identify minerals and rock types. Materials are analyzed by recording their interactions with solar radiation providing data that distinguishes them from other similar materials. Using this proxy, chert samples originating from different geologic locations may be distinguished from each other by a method called Visible/Near-Infrared Reflectance spectroscopy (VNIR). The dependability of VNIR to differentiate chert materials was tested on samples obtained from the Lower Tennessee and Cumberland River Valleys of western Kentucky.

Justin Parrish, Isaiah Story, and Robert Stuard – Agricultural Science
Comparison of Residual Herbicide Programs for Dark Tobacco 2007
Mentor / Sponsor: Dr. David Ferguson

This experiment compares different weed control methods for dark-fired tobacco by herbicide use for the years 2006-2007. Similar experiments were conducted in both years. There were nine treatments that were replicated four times. Each plot was four rows wide and forty feet in length. Every treatment was applied at rates according to their label in 15 gallons of water per acre. The nine herbicide treatments were applied just prior to setting the tobacco transplants. Treatment No.1 was a 0.375 lb. per acre of sulfentrazone (Spartan 4F) application. Treatment No. 2 was a 1.0 lb. per acre of clomazone (Command 3ME) application. Treatment No. 3 was a combined application of 0.375 lb. per acre of sulfentrazone and 1.0 lb. per acre of clomazone. Treatment No. 4 was a 1.485 lbs. per acre of pendimethalin (Prowl 3.3EC) application. Treatment No. 5 was a combined application of 0.375 lb. per acre of sulfentrazone and 1.485 lbs. per acre of pendimethalin. Treatment No. 6 was a 4.0 lbs. per acre of pebulate (Tillam 6E) application. Treatment No. 7 was a 2.0 lbs. per acre of napropamide (Devrinol 50DF) application. Treatment No. 8 was a combined application of 4.0 lbs. per acre of pebulate and 2.0 lbs. per acre of napropamide. Treatment No. 9 was an untreated control plot. The plots were harvested October 2. Weed control ratings and yields for 2006 and 2007 were analyzed statistically.

Kathe Payne-Boget, Kendrick Quisenberry, and Andew Scott – American Humanics
Penny Wars for Big Brothers, Big Sisters
Mentor / Sponsor: Dr. Roger Weis

We wanted to come up with a creative way to make money for BBBS while also getting the campus involved. Most of the Big Brother Big Sisters volunteers are Murray State students so we thought it would be a good chance to get students involved while collecting money at the same time. Our group started off with a modest goal of 100 dollars raised but ended up raising over 370 dollars. Big Brothers Big Sisters main goal is to help children reach their potential through professionally supported one-to-one relationships with mentors that have a measurable impact on youth. The mentors have a positive impact on children's lives and often develop strong bonds with the students. The poster presented includes the purpose and results of the activity as well as what changes could be made to make the program even more successful.

Toby Pirkle – Criminal Justice
The Art of Cockfighting: An Organized Criminal Enterprise
Mentor / Sponsor: Dr. Paul Lucko

The ancient sport of cockfighting continues to flourish in the contemporary United States. Although all fifty states have outlawed the surprisingly complex competition, gamecock combat persists as an underground criminal enterprise. This paper includes an overview of the brutal sport's history and its most salient features today. A popular misconception that cockfighting appeals to only a relatively few white Americans who reside in the rural South and to members of certain immigrant groups is partly responsible for the sport's subterranean status. Despite its illegality, the fascinating yet horrific practice has attracted new devotees in recent years. Illegal cockfighting presents concerns for animal rights activists, gambling opponents, and law enforcement in Kentucky and elsewhere.

Kelsey Quade – Psychology
Factors Affecting Menu Choices
Mentor / Sponsor: Dr. Paula Waddill

Because of the importance of food in everyday life, it is necessary to understand how people choose the foods they eat. Of particular interest is what affects how decisions are made when choosing from a restaurant menu. Two factors that seem to play roles in food choices are cost and nutritional value. In the current study, a sample of 94 Murray State University student volunteers were asked to select an entr'e, side, dessert, and drink from a menu. Menus were of three types: prices-only (prices assigned to items), calories-only (calories assigned to items), and calories+prices (both aspects assigned). The results indicated that price alone was significantly more important when choosing menu items. When only calories were given, people tended to avoid high-calorie entrees and desserts, but calories did not matter in choice of sides. When both calories and prices were given, participants tended to choose low-price and low-calorie entrees and sides. For desserts, there was a significant relationship between price and calories, suggesting that participants may have put more consideration into this decision than others.

Tara Radtke – Elementary Education
Loris Alert
Mentor / Sponsor: Dr. Howard Whiteman

It is my wish to raise public awareness and support for the conservation of the slow loris, an endangered Southeast Asian species which is removed from its natural habitat and black-marketed throughout much of Asia. To fulfill the BIO 112 service learning requirement, as well as to satisfy my own individual aspirations, I plan to write, illustrate, and attempt to publish an informative fictional children's book. The story will follow a young loris as he ventures through Thailand. If the book is marketable, any proceeds will go towards protecting the slow loris.

Amanda Ralston – Liberal Arts
A Sociological Evaluation of F. Scott Fitzgerald's The Great Gatsby
Mentor(s) / Sponsor(s): Dr. Barbara Cobb, James La Valle, and Kelley Wezner

F. Scott Fitzgerald's novel, The Great Gatsby, reflects the social structure of America during the 1920's when it was published as well as illustrating aspects of Fitzgerald's personal life. The novel is carefully constructed using physical settings to group the characters together according to each own's social background and status thus the physical setting where each character lives influences their actions and behaviors as well as interactions with characters from other settings. It is within these day to day interactions among the characters that Fitzgerald illustrates how the quest for success and wealth and furthermore achieving the "American Dream" can lead to destruction.

Sarah Ramage – Spanish and German
Student Movements in Mexico and Germany in 1968
Mentor(s) / Sponsor(s): Drs. Leon Bodevin and Reika Ebert

Nineteen sixty-eight was an extraordinarily active year politically and socially among students throughout the world. The primary points of focus of this presentation are the student revolts and rebellions which took place in Mexico and Germany. Three primary influences which shaped the student movements will be explored in the presentation. Ernesto Che Guevara was a famous Latin American revolutionary who led the Cuban Revolution. The Communist Manifesto was written by Karl Marx and Friedrich Engels, and emphasizes that a large group of lower class individuals can overpower a small group of powerful elites. Lastly, the age group of the students was the first to be raised in the aftermath of the Second World War. The student movements of 1968 had a very strong social and political impact on Mexico and Germany.

Ian Reed – International Affairs
The Effects of the International Monetary Fund on Developing Nations
Mentor / Sponsor: Dr. Michael Basile

This presentation briefly describes the purpose and goals of the International Monetary Fund (IMF), and then discusses the effects of the conditions imposed upon developing nations to receive funding from the IMF to handle balance of payments issues as well as poverty reduction. Discussion then turns to whether these conditions favor the developing nations or the IMF itself.

Ashley Rigdon – International Affairs
The World Bank and the Competitive Global Economy
Mentor / Sponsor: Dr. Michael Basile

This paper gives some history and facts about the World Bank. It discusses the factors the World Bank has stated are needed for a country to become active in the global economy and explores the practicality of these factors for developing nations. Some factors that are discussed are the infrastructure, the type of workforce, the political structure, the regulations, and the resources of a nation.

Brian Robertson – Chemistry, Finance, and Mathematics
Diagnosing Retirement
Mentor / Sponsor: Dr. David Eaton

It is day one of retirement and over the course of your working life you have accumulated a sum of money for your retirement. Perhaps this money is tied up in several investments or within a company retirement fund. The question becomes, what should be done with the money now that you have retired? Most would agree that your investment strategy in retirement should be different than it was in your working career, but how so? How will you guard this money against inflation, low investment returns, and unexpected illnesses? These, among others, are very pertinent questions that must be evaluated in the journey toward financial security in retirement. In retirement, your first concern is to preserve the capital you spent years working for and to keep this principle safe. This means that you need to be well diversified among many different asset classes. This paper addresses how your assets should best be allocated to preserve capital, maximize income, and minimize depletion. We calculate efficient portfolios through optimizing various performance metrics including Coefficient of Variation (CV), Minimum Variance, Sharpe, and Value at Risk (VaR). We also calculate each efficient portfolio's respective return, risk, and probability of loss. In particular the research addresses questions such as: Once in retirement, what is the best investing strategy for the retirement money? What asset allocation should be used? What are the tax effects of certain strategies? How is the withdrawal rate a function of beginning principle?

Warren Robinson – Journalism and Spanish
Chavez's Venezuela
Mentor / Sponsor: Dr. Leon Bodevin

Even before assuming the presidency of Venezuela in 1998, Hugo Chavez believed there was need for significant change in his nation's government. During his crusade for social revolution Chavez has deeply divided the people of Venezuela with his unconventional politics. His term has seen attempted coup d'tat's and oil strikes meant to cripple the Venezuelan economy, yet Chavez has endured. While his critics charge he is making a power grab, his supporters believe he holds the key to a more equal, multi-polar world. This study will explore the events surrounding Chavez's political career and the affect it has on the region.

Emily Roethemeier – International Affairs
Post- War Guatemala's Emergence into the Global Community
Mentor / Sponsor: Dr. Michael Basile

Guatemala was riveted with civil war from 1960 to 1996. For 36 years the world around them evolved at a rapidly modernizing pace. Upon peace being agreed upon, Guatemala began to look at healing their country in order to participate in the global frontier. This healing process includes a combination of improvements in the judicial system, political system, the infrastructure, security, and social reforms. These things need to improve in order for the economy to flourish. Without the economic support from Guatemala's good and services, it would be difficult to give the people of Guatemala the vision of stability and progress.

Dan Runnels – Spanish
US Foreign Policy Towards Cuba: The Time to Change
Mentor / Sponsor: Dr. Mica Howe

The United States finds itself under the rule of a presidential administration that, many have claimed, operates under a foreign policy failure. Specifically, the voice of those who criticize US foreign policy towards one of our closest neighboring countries has grown stronger over the years. This problem, however, cannot be attributed entirely to our current administration. Since the inception of the US arms embargo against Cuba in 1958, several presidents have altered it some making it stricter and others loosening it. The embargo has included limits on American travel between the two countries, arms exchanges, imports and exports, and others. The strongest voice in favor of lifting the embargo declares that the embargo does more damage, in a humanitarian sense, to the Cuban people than good since Fidel Castro used it as a tool to deflect the blame onto the US for the devastating economic situation in which Cuba finds itself. With the recent resignation of Fidel Castro and the approaching presidential election in the US, there has never been a better time to reassess US foreign policy in relation to Cuba. This paper will study Cuban-American relations from the initiation of the embargo, will follow the changes that have been put into effect, and will argue that it is time for the US to lift the embargo against Cuba.

Amy Scarbrough – Spanish Education
The Life of Lazarillo: A Criticism of the Mentality of the Golden Age of Literature
Mentor / Sponsor: Dr. Mica Howe

The Golden Age of Spain, from around the years 1492-1681 AD, was a time of great social, political, and religious transformation. First, with the expansion into the New World riches flowed into the treasury of Spain, yet very little of it made it to the average person. The majority of the people lived in hunger and need, with a substantial gap between the higher and lower classes. Fueling this gap was the social idealism of honor and respect; however, this view of honor was distorted and based not on personal qualities but on possessions and wealth. This was also a period of religious hypocrisy in which the church held great power, yet was beginning to lose it due to the ideas of the reformation. It is in this time that La Vida de Lazarillo de Tormes was written, recounting the tale of a young "*pícaro*," or antihero. Through the wit, intelligence, and craftiness of the "picaro," the anonymous writer challenges the mentality of the culture through his use of symbolism and irony. This study will examine both in order to have a better understanding of the culture of the time and the message of the author.

Alana Seaborg – Spanish
Desire, Communication and the Supernatural in Laura Esquivel's Tan veloz como el deseo
Mentor / Sponsor: Dr. Susan Drake

The writings of Latin American women are rapidly gaining international attention in the literary world. Laura Esquivel is a Mexican author who uses the "magic realism" style of writing, and her novels, like *Tan veloz como el deseo* (*Swift as Desire*) delve into the world of the Latin American tradition with an emphasis on the female experience. The novel explores themes of desire, romance, tradition, social class, idealism, family and, most importantly, how all these affect each other when communication is broken and personal desires remain unmet. The presentation will investigate the interactions between characters in the novel and how their relationships relate to the populace on a broader scale.

Sara Settler and Stephanie Weaver – Elementary Education
The Correlation Between Animal Mortality and Speed Limits
Mentor / Sponsor: Dr. Howard Whiteman

We are interested in the number of animals that are killed due to road mortality, particularly in areas with high speed limits. We hypothesized that there will be more road-kill where the speeds are higher, in comparison to areas where the speed is lower. We are making bi-weekly trips down the fifteen mile stretch of 121, cataloging road-kill according to where they were found and in what speed zone. We will discuss our results and what can be done to reduce road mortality.

Jang Siegl and Zachary Szczepaniak – Geosciences
Nanotechnology: The Road to Reality is Paved with Dreams
Mentor / Sponsor: Dr. Howard Whiteman

Nanotechnology, once the exclusive domain of science-fiction novels, has slowly been infiltrating the public sector, appearing on the labels of such items as stain-resistant pants and sun tan lotion. Despite the appearance of myriad "nano" products on shelves, few outside of the scientific realm understand what the label heralds' that nanotechnology is poised to become the core technology of the 21st century. Yet how does nanotechnology work today and what far-reaching applications lay in the future? Since nanotechnology works on such a small level, would we be able to repair our bodies in ways we cannot today? By rearranging molecules of carbon dioxide, would we be able to halt our contributions to global warming? In our discussion we plan on addressing questions such as these, especially concerning the possible effects, positive and negative, of nanotechnology in the medical field and the environment.

Brendan J. Shannon – Chemistry
Multipodal Anion Complexation by Gramicidin-mimetic Cyclic Decapeptides: Evaluation by in silico *Screening*
Mentor / Sponsor: Dr. Daniel Johnson

The computational analysis of anion complexation by proline-containing, gramicidin-inspired cyclic decapeptides is presented. As has been reported, these peptides assume β-sheet conformations in which amino acid side chains orient above/below the sheet in an alternating fashion. Our interest lies with using such peptides as ionophores in ion-selective sensors; these peptides may afford a hybrid approach to ion recognition, combining characteristics of traditional cyclic peptidomimetics and multipodal (e.g., podands) ionophores. Studies were limited to complexation at a single peptide face with pertinent amino acids confined to basic and H-bond donor types. Molecular Mechanics calculations were used as an initial screen, whereby peptides were ranked/scored based on complex stability and anion-binding selectivities. A focused group of peptides then was subjected to Semi-Empirical calculations as confirmatory screens. The computational models revealed distinct anion-recognition behaviors for varying compositions and positional placements of amino acids within the cycle. Ultimately, these computations will allow us to select compounds rationally for empirical studies.

Herbert Earl Sharp – Agronomy

Analysis of the Ratio Vegetation Index (RVI), the Normalized Difference Vegetation Index (NDVI), the Green Normalized Difference Vegetation Index (NDVIg), and the Infrared Percent

Mentor / Sponsor: Dr. Ryan Anderson

Vegetation Indices are sets of equations used to detect the greenness of vegetation in an area. This greenness check allows a researcher to either monitor the changes in the amount of vegetation in an area, or the health of the vegetation in an area. In the field of agronomy, these indices are used to help in detection of weeds in crops, to help monitor the health of a crop through a drought or to monitor the progress of any type of pathogen or pest through a crop. This type of analysis often involves the joint use of several vegetation indices as a model. The purpose of this study was to compare each of four different vegetation indices commonly used in detection of weeds in crops, namely the Ratio Vegetation Index (RVI), the Normalized Difference Vegetation Index (NDVI), the Green Normalized Difference Vegetation Index (NDVIg), and the Infrared Percentage Vegetation Index (IPVI). The main goal of this study was to see how each vegetation index compares to the others. Another goal was to see how differently vegetative health and abundance were depicted by the different methods and how the methods would perform using imagery that did not have sub-meter accuracy. Since the methods chosen are used most effectively to detect weeds in imagery that has sub-meter accuracy.

Sandy Shortt and Jessica Wright – Biology
LBL Road Kill Survey
Mentor / Sponsor: Dr. Howard Whiteman

Construction on highway 68/80 to widen the road has created concern of many naturalist and ecologist. We have surveyed the area and kept records of the road kill discovered by our team in order to compare to the amount of road kill after construction is complete. It is our belief that the amount of road kill will increase after the road is widen and thus the surface area were animals can be hit by passing vehicles.

Patricia Slack and Elizabeth Tucker – Biology and Psychology
How Genetic Mapping Changed Biology: A Look at the Haldane Function
Mentor(s) / Sponsor(s): Drs. Howard Whiteman and Maeve McCarthy

When two or more genes are located on the same chromosome they are linked, and during meiosis, these linked genes can randomly undergo crossover. Thomas Hunt Morgan observed that the amount of crossover between linked genes was different. He later found that these differences correlate into the relative distances between the genes on the chromosome. Using recombination frequencies (% crossover) and the Haldane function, a genetic map can be created to show the order in which genes lie on a chromosome and the relative distance between them. This is important in modern medicine because a single gene that causes an inherited disease, such as cystic fibrosis or muscular dystrophy, can be identified. Once a gene is recognized, then it can be cloned and the protein product that it codes for can be uncovered. Thus, genetic mapping may lead to better treatments for these diseases and possibly even a cure. Our goals for this talk are to present the fundamentals of genetic mapping, tell how an understanding of genes is useful, and demonstrate the use of the Haldane function with a simple example.

Robyn Smith and Jenny Wilkins – Liberal Arts and Psychology
Technology and Interpersonal Communication
Mentor / Sponsor: Dr. Howard Whiteman

We explore the ways that advances in technology affect our social relationships and communication skills. These advances clearly make it easier for people to connect with one another, but at what cost? We believe that the quality of our relationships and interactions is being damaged by these modern conveniences we have come to view as necessities. For example, evidence suggests that technology encourages social isolation and that technological efficiency reduces the need for people to interact. Technology has truly revolutionized the way we communicate, yet it clearly lacks some of the principal components of human interaction, such as tone of voice, body language, facial expression and touch. These elements of communication are necessary parts of our human development and our understanding of others, and we hope that through further study, humans can identify and attempt to reverse the negative effects of technology before any long-term harm is done. It is thus important to research and discuss these topics in order to raise awareness of the detrimental effect these communication devices have on us, and how continuing advances in technology may cause us to become more and more socially separated if we do not recognize and attempt to ameliorate the problem.

Zachary Smith – Internacional Affairs and Spanish
Capitalism at Any Cost: U.S. Involvement in Chile
Mentor / Sponsor: Dr. Mike Waag

According to Emanuel Kant, the particular activity of States on the international stage is to engage in a conflict of ideologies. As Americans, we tend to see ourselves as warriors for moral righteousness around the world and many would say that this, coupled with democracy, is the ideology that we fight for on the world stage. History, however, supports a more realist view. The United States is also the most capitalistic nation in the world and at many times throughout history has chosen this ideal as a driving force. The events that occurred in Chile after the election of Salvador Allende in 1970 serve as an example of capitalism trumping all other values in American foreign policy. President Nixon promoted the overthrow of a democratically elected official and then the United States turned a blind eye to numerous human rights violations of the following dictatorial regimen. This was not done for the sake of moral uprightness or for the promotion of world democracy, but for the sake of capitalism and the advancement of American corporate interests. When, in the eyes of our government, do human rights outweigh economic gain? This paper investigates that question retrospectively, using the case of U.S. involvement in Chile from 1970-1981 under both the Allende and Pinochet regimes.

Courtney Snapp – Water Science
Diatom Species Assemblages and Community Dynamics in Four Springs of Differing Geologic Origin, Land-Between-the-Lakes, Western KY and TN
Mentor / Sponsor: Dr. Susan Hendricks

Previous studies have shown that physiochemical factors and nutrient concentrations of freshwater springs are influenced by the underlying geology and may influence species composition of periphyton colonizing stream substrates. Diatom assemblage composition was examined in four springs of different geology every four weeks between November 2006 and July 2007 using unglazed quarry tiles as artificial substrate. There were significant differences in diatom species composition in the springs with different underlying geologies. Planothidium lanceolata and Cocconeis placentula were the dominant species in the carbonate streams with limestone geology; these taxa have been classified as calciphilous with a high 481 uS cm -1). Achnanthidium minutissima,−optimal conductivity (107 Eunotia intermedia and Fragilariforma virescens were most abundant in the streams with siliceous and argillaceous geology; these taxa have been classified as acidophilous diatoms with a low optimal conductivity 163 uS cm -1).−(48). Changes in 13C composition of periphyton biomass over time was examined over two seasons (every two weeks during spring and summer) in 2007. Periphyton biomass was determined by measuring chlorophyll a and ash free dry mass. Previous studies have shown that periphyton 13C is correlated positively with the development of periphyton biomass over time. However, the results of this study showed that as periphyton biomass increased over time, the carbon stable isotopic ratios decreased.

Tammy South-Price – Integrated Studies
An Archeological and Historical Study of the Paris Landing State Park Bradford Cemetery
Mentor / Sponsor: Dr. Kit Wesler

During the summer of 2006, a proposed trail extension which led to the Bradford Cemetery, at Paris Landing State Park, was scheduled for construction. Upon inspection of the site, it was determined that this trail extension would cut across what appeared to be several graves, many of which were unmarked and segregated. This implied segregation encouraged research in African American archaeological studies. The goals of the research project were (1) determine the boundaries of the original cemetery, (2) compare historical documents to actual cemetery grounds, (3) discern possible cultural affiliations, and (4) conduct an analysis of the cemetery in order to determine the context and integrity of the unmarked graves. This project prevented desecration to the Bradford Cemetery, strengthened the knowledge base of the regional community, and increased awareness of cultural issues.

Heather Stroupe – Psychology
Reality Check: You Don't Always Get What You Expect
Mentor / Sponsor: Dr. Paula Waddill

For many students, the overall goal in attending a university is to have better job opportunities available to them when they graduate compared to what would be available to them after high school. After obtaining the bachelor's degree, however, a student may find himself/herself completely dissatisfied with the major and, therefore, dissatisfied with the career opportunities related to that major. However, to start their college career over again to change their major would be, for many, a waste of time. This research investigated the expectations college students had about salary and job growth in careers related to their major. Differences between these expectations and published reports of salary and growth were compared as a function of class (freshmen, seniors) and type of job (related to major, not related to major). Other expectations such as time needed to find a job were also studied. Ways to improve career education at universities is discussed.

Chelsie Taylor – French
The Rise of Feminism Through African Cinema
Mentor / Sponsor: Dr. Janice Morgan

Women's power is a controversial topic in Africa. Although women are trying hard to be respected and equal with men, traditional ideas still surround them. Women struggle to earn an education and meet many obstacles before receiving their *baccalauréat*. Polygamy, genital mutilation, and, of course, AIDS threaten these women from becoming independent members of society who can make a difference to those around them. The films *Moolaadé, Faat Kiné,* and *Tableau Ferraille* depict women who have overcome these obstacles. They have earned a career, an education, rights to their own bodies, and respect from the people around them. These films show the differences between women who have triumphed over major setbacks from those who have not and how these women are viewed within their society. This paper will explore both the advantages and consequences for women in Africa who have chosen to change their lives from traditional views.

Sarah Thomason and Michael Whitby – Biology and Mathematics
An Analysis of the Escherichia coli Growth Model
Mentor(s) / Sponsor(s): David Roach and Renee Fister

Bacteria are ubiquitous organisms that we come in contact with daily. Often studied in biology class, various models are used to describe the behavior of bacteria populations. However, bacteria growth is only accurately described to a certain point under specific environmental conditions. Using a closed system, we monitored multiple factors that can affect population growth, such as pH, conductivity, and protein levels. With these results we created a model to describe the relationships between the observed growth factors and the population growth cycle. Due to the intricate nature of bacterial growth, the simpler models led us to believe that bacterial growth is more complicated. Using other related growth models, we constructed our own model that makes better use of our data in graphing a viable count and better justifies bacterial growth than the over simplistic exponential and logistic models.

Elizabeth Thornhill – Economics
Technology: Providing Information to Assist in Price Discrimination
Mentor / Sponsor: Dr. David Eaton

I will examine price discrimination, charging different prices to different customers based on their willingness to pay in order to maximize profits. In particular, I will be looking at how technological advances have made price discrimination more feasible for individual firms to implement. I will be looking at ways firms gather information given today's technology, such as tracking purchase history with discount cards, collecting phone numbers at checkout, or tracking online purchases. I will then look at how they are able to effetely use the information that they have gained in order to charge different prices to different buyers, by sending coupons to customers given the information they have learned about the individuals purchases, or tracking clicks to get to an item, meaning wither or not they are looking for that specific item or if they like related items. I will also seek to examine how sales have changed for businesses that have implemented these types of price discrimination.

Robert Tokosh – Agriculture
Assessing Soil Organic Matter Pools Under Different Grass Species
Mentor / Sponsor: Dr. Iin Handayani

Soil organic matter is an important indicator to determine land productivity. Grass species selection for pasture or hay is considered crucial to enhance organic matter accumulation in the top soil. This study was conducted to evaluate the effect of various grass species on soil organic pools, including total soil carbon and particulate organic carbon. Soil samples from the depth intervals of 0 to 15 cm and 15 to 30 cm were collected from Kentucky 31 tall fescue, bermuda grass, rye grass, johnson grass and mixed grass fields. The presentation will explain the dynamics of total soil carbon and particulate organic carbon as affected by different grass species and sampling depth.

Jennifer Tucker – Psychology
Relationship of Caregiving to Adolescent Behavior
Mentor / Sponsor: Dr. Paula Waddill

This research aimed to analyze the relationship of caregiving to adolescent behavior and to establish which factors were related to the negative behaviors during adolescent. A total sample of 51 undergraduate college students from Murray State University were given a set of three questionnaires to answer about themselves as adolescents and about their parents during their adolescence. The first part of the questionnaire was the Parental Nurturance Scale (Buri, 1989) and it was used to measure parental caring from the point of view of the child, including perceived parental approval, acceptance, and affirmation of their children. The second part of the questionnaire was the Parental Authority Questionnaire (Buri, 1991). This test measured the level of permissive, authoritarian and authoritative parenting styles. The third part of the questionnaire evaluated amount of positive and negative adolescent behavior the participants exhibited during high school as well as involvement in high school activities. The fourth section measured parental involvement with their child. The results indicated that authoritarian and permissive parenting was associated with significantly more adolescent negative behavior. Authoritative parenting was associated with significantly fewer negative behaviors in adolescence. Parental nurturance and parental involvement was also associated with significantly fewer negative behaviors in adolescence. Results also showed that child involvement, gender and age were associated with significantly more negative behaviors in adolescence.

Matt Upchurch – Agronomy
Residual Effects of Broiler Litter on Soybean Productivity
Mentor(s) / Sponsor(s): Drs. David Ferguson, Iin Handayani, and John Mikulcik

The residual effects of historical broiler litter applications on soybean productivity are currently being evaluated. Between 1997 to 2002, annual broiler litter application treatments were: 0, 2.2, 4.5, 6.7, 9.0, 11.2, 13.4, and 15.7 Mg/ha. In 2003, the broiler litter application was reduced to a half the above rate. In 2004, no broiler litter applications were made. Throughout this period, corn was grown on these plots with only broiler litter applications and no fertilizer. During the 2005 and 2006 season, soybeans were grown on these historic plots with no further broiler litter applications. In these soybean experiments, extra phosphorus (258 kg/ha of P2O5) and potassium (280 kg/ha of K2O) was applied to the low fertility plots that had received the historical low broiler litter rates (2.2 or 4.5 Mg/ha). In these two years, the soybeans receiving the extra supplemental phosphorus and potassium did not yield as well as the plots with historic high broiler litter rates. Overall, the soybean yields were significantly higher in the plots with the high historic broiler litter application rates compared with plots that had received lower broiler litter rates. In 2007, a soybean experiment has been conducted to investigate reasons for this effect. Because of the severe drought during 2007, the experiment was irrigated using drip lines. At the R6 stage, the total above-ground portion of the plants within a 0.5-meter of row was harvested and is being analyzed for 13 elements. Additionally, soil fertility, soil quality, and soybean yields are being measured.

Warren Van Wyck – Biology and Secondary Education
Threatened and Endangered Animals of Kentucky
Mentor / Sponsor: Dr. Howard Whiteman

An overview of threatened and endangered animals of Kentucky will be provided along with the definitions of "threatened" and "endangered". Also, the possible reasons that these animal populations are so low in number will be discussed. The U.S. Endangered Species Act will be introduced and then a comprehensive list of 10 ways to help threatened and endangered animals will be elaborated upon at length during the presentation. These include:
1. Protect Wildlife Habitats
2. Join a Conservation Organization
3. Reduce the Threat of Invasive Species
4. Incorporate Native Species into Your Garden
5. Voice Your Concerns and Get Involved in Local Conservation Efforts
6. Recycle and Reduce Energy and Goods Consumption
7. Minimize use of Herbicides and Pesticides
8. Place Decals on Windows to Deter Bird Collisions
9. Slow Down When Driving
10. Reduce Your Family's CO2 footprint

Todd Walker – Biology
Control of Termites by the Fungal Exposure
Mentor / Sponsor: Dr. Claire Fuller

Termites are important structural pest in North American and worldwide. They are also highly important in recycling of woody debris in natural habitats to make nutrients available for plants. Because of these attributes, the studies of pathogens that affect termites are of great interest to ecologists and pest managers. We have discovered a novel fungus associated with corpses of Caribbean termites. We are testing this fungus to determine whether it is a pathogen. We hypothesized that this new fungus will affect survivorship of individual termites. To test this hypothesis, we exposed local Reticulitermes flavipes 4 groups of termites to a control(5% Tween 80 solution) or one of 3 fungal spore concentrations: 103 cells/mL, 105 cells/mL, or 107 cells/mL. Fungal spores were dissolved in Tween 80 (5%). The termites were observed till their death and plated on fungal growth medium to assure that the exposed termites were infected by our exposed fungus. We expect that the termite's death rate will increase with exposure to the concentrated fungus. These results could lead to new methods of termite control. In addition, the novel fungus will allow us to conduct controlled experiments on the affect of termite pathogens on their contribution to forest ecology.

Crystal Watson – International Affairs
Ireland's changes since the membership of the European Union
Mentor / Sponsor: Dr. Michael Basile

In my research paper, I will discuss how Northern Ireland and Republic of Ireland have changed since joining the EU. I will start off with an historical analysis of the previous political, social and economic issues that faced both Northern Ireland and Republic of Ireland prior to membership in the European Union. This will also include the struggles that the historic division of Ireland created. I will contrast this descriptive analysis with a review of the European Union's impacts on the current political, social and economic situation. This will include items such as the acts, treaties or laws that were made to assist or limit Ireland's trade under EU regulation. Discussed in further detail will be the unemployment rate, foreign direct investment, Gross Domestic Product, national income, labor skills, exports, imports and trading partners. This will conclude with a discussion of whether joining the European Union was positive or negative and what the future might hold for Ireland.

Kirby Watts – Spanish
Defense of the Origins and Practice of Slavery in Colonial Latin America and the West Indies (Las Defensas de los Orígenes y la Practica de la Esclavitud en América Latina y las Antillas Coloniales)
Mentor / Sponsor: Dr. Michael C. Waag

Slavery is a subject that, by nature, is very opined. There is clear evidence of its employment and practice throughout the history of organized society. The views of prominent Spanish and Catholic figures, such as Christopher Columbus, Gonzalo Fernández de Oviedo, Pope Alexander VI, Henry of Susa Cardinal Bishop of Ostia, and Palacios Rubios are explored in order to show how the Catholic Church and the Spanish crown worked together to justify the slavery of the indigenous peoples of Latin America and the West Indies. Their methods for doing so included the defamation and demoralization of the natives. Although pro-Indian rights proponents won when all was said and done, the Church and Spain each attained their goals of becoming richer and more powerful through the enslavement of the indigenous peoples.

Cody Wiles – Economics
Outsourcing of America
Mentor / Sponsor: Dr. David Eaton

Outsourcing jobs is a sensitive subject especially when it hits an area near you. Many people know someone that is affect by outsourcing. I will talk about different aspects of outsourcing. The presentation will examine: how outsourcing affects job opportunities for people in the United States, the impact of outsourcing on the economy, and the impact on individual communities that lose a major providers jobs.

Molly Williams – Mathematics
Annihilating Cancer Cells at a Minimal Cost for a Model with a Delay
Mentor / Sponsor: Dr. Renee Fister

Mathematical modeling has become a prevalent way for exploring physical processes. We explore a nonlinear model, which describes the interactions of cancer cells in different development phases and a mitotic phase specific chemotherapy drug. The model includes a constant time delay in the mitotic phase. Existence and uniqueness of a solution has been shown. Optimal control theory is then applied to the model where the goal is to minimize the tumor cells and the amount of chemotherapy drug needed. Results from the numerical analysis with Matlab's built in delay differential equation solver is discussed.

Troy Williams – American Humanics
World Aids Day
Mentor / Sponsor: Dr. Roger Weis

The project in which I implemented was for World Aids Day. As everyone knows Aids is a huge deal around the world. In fact, Aids is the number one killer in some countries. In the U.S we have been educated about the idea of this virus and have used methods to help prevent the spread of it. In other parts of the world this isn't the case at all. Many people around the world still have no idea of the impact Aids is having upon them. As Americans we need to be aware of Aids, not only here but also around the world. The program I wanted to do was hand out red ribbons in order for people to realize and remember the seriousness of this virus. Not only did I want to hand out ribbons but also a small sheet with facts about the virus. I believe if people realize the impact that Aids have on all of us, not only in America but around the world it would cause people to act.