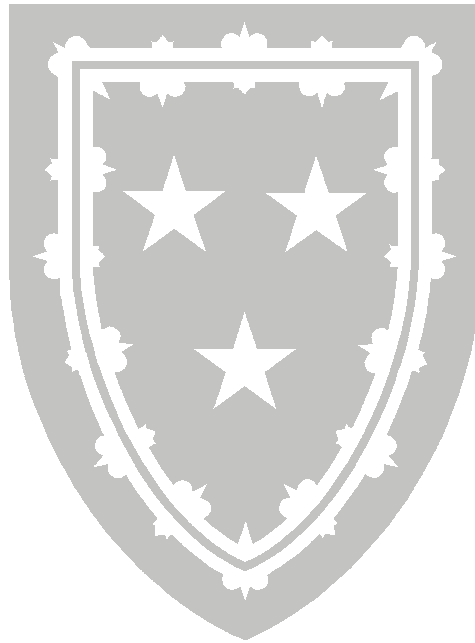


College of Education • College of Health Sciences and Human Services • College of Humanities and Fine Arts • College of Science, Engineering and Technology • School of Agriculture • College of Business and Public Affairs

Murray State University

# Scholars' Week



A Celebration of Student  
Research, Scholarship, and  
Creative Work

April 22-26, 2002

# Scholars' Week

## Program and Abstracts

### Table of Contents

<b>Welcome Letters.....</b>	<b>1</b>
F. King Alexander, President	
Gary Brockway, Provost and Vice President for Academic Affairs	
Dannie E. Harrison, Dean, Business and Public Affairs	
Jack Rose, Dean, Education	
Sandra Jordan, Dean, Humanities and Fine Arts	
Elizabeth Blodgett, Dean, Health Sciences and Human Services	
Neil Weber, Interim Dean, Science, Engineering and Technology	
James Rudolph, Director, Agriculture	
URSA Advisory Board	
<b>Program</b>	
Monday, April 22.....	7
Tuesday, April 23.....	8
Wednesday, April 24.....	11
Scholars' Week Luncheon.....	12
Friday, April 26.....	13
<b>Abstracts.....</b>	<b>15</b>

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Welcome to Murray State University's first annual *Scholars' Week* Celebration. As one of this nation's premier comprehensive universities Murray State is committed to providing high quality scholarly teaching and research opportunities to our students.

Throughout the year our students work closely with excellent faculty from an array of academic disciplines to develop and foster new research. This kind of scholarly collaboration between students and faculty produces new knowledge that can shape the career paths of our students while also impacting the social and economic development of our cities, counties, and states.



This year I am pleased to see the number of students who are participating in our first annual *Scholars' Week* event, and I look forward to watching this event grow in the years to come. I invite not only members of the Murray State family to attend *Scholars' Week*, but I would also encourage people from the Murray community to come and see how our students might some day impact our world.

**F. King Alexander, Ph.D.**  
**President, Murray State University**

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Welcome to the first annual *Scholars' Week* at Murray State University! Please join us in this university-wide celebration of undergraduate and graduate research, scholarship, and creative activity. As you view the contents of this program, you will note the many student accomplishments in a variety of academic disciplines. During the week, students will have the opportunity to showcase their scholarship efforts through oral presentations, poster sessions, exhibits, and performances.



I applaud the efforts of our new Office of Undergraduate Research and Scholarly Activities in organizing and coordinating this inaugural *Scholars' Week*. I believe research, scholarship, and teaching go hand-in-hand and provide one of the very best learning environments for students. 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 this week and enjoy!

**Gary Brockway, Ph.D.**  
**Provost, Murray State University**

What a wonderful opportunity for us to celebrate and enjoy the research and creative endeavors of our students. Even after my many years (30+) in an academic career, my greatest joy is still to see the “light” come on for my students and to share with them the results of their own discovery.

I am still convinced that the “best road to true learning” is through the activity and hands-on experiences of our students and faculty. I also believe history shows that more breakthroughs in research and creativity happen where we create and have an environment that encourages them. Surely if this does not happen at a university, then where will or can it happen?



Author, Leo ostent , stated, “The purpose of life is not to be happy. The purpose of life is to matter, to be productive, to have it make a difference that you lived at all. Happiness means self fulfillment and is given to those who use to the fullest whatever talents God or luck or fate bestows upon them.”

We are experiencing with this first annual *Scholars’ Week* Celebration at Murray State University the opportunity for our students to be mentored by our faculty and for our students to “make a difference.” Enjoy this great event and congratulations to our students. Continue in your life to be productive, to matter, and be happy.

**Dannie E. Harrison, Ph.D.**  
**Dean, College of Business and Public Affairs**

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The College of Education is excited to support and participate in this first *Scholars’ Week*. As the entire campus of Murray State University joins to celebrate undergraduate and graduate scholarship, research and creative activity, the accomplishments of Murray State students will be held high for all to see. These student efforts are reflections of the contributions of our faculty in focusing on preparing students to become exemplary professionals who will continue their creative and research activities. As you visit the various exhibits and presentations, I hope your appreciation for the exciting learning environment the university is fostering will be enhanced. *Scholars’ Week* demonstrates that Murray State University is preparing students to make significant contributions to a global and technological society. I encourage you to enjoy this event and to congratulate the participants on their accomplishments.



**Jack Rose, Ed.D.**  
**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 and to showcase the results of their research, scholarly and creative projects. This event is also a tribute to the dedicated faculty who encourages and directs research and creative work on our campus. These activities set the stage for active learning and provide students with the opportunity to know the joy of making an original contribution to the knowledge in their discipline. As you attend presentations and view exhibits, you will see the university's commitment to academic excellence reflected in the quality and diversity of these projects. On behalf of the faculty and students of the College of Humanities and Fine Arts, I welcome you.

**Sandra Jordan, Ph.D.**  
**Dean, College of Humanities and Fine Arts**

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This is a celebration of the unique relationship between students and faculty as they join together to address problems in creative ways. Faculty student collaboration in the research process provides an opportunity for personal and professional growth for both students and faculty that few other activities afford. Murray State is recommitting itself to the joys of exploration and to the importance of including undergraduates as well as graduate students in this exciting process. This first annual *Scholars' Week* event celebrates the product of these collaborations as well as the process. As you examine these exhibits, join us in appreciation of the diversity of intellectual and creative activity going on at Murray State University.



**Elizabeth Blodgett, Ph.D.**  
**Dean, College of Health Sciences and Human Service**



The primary goal of Murray State University’s faculty and staff is “fostering student-centered learning and development.” Central to the mission statement of Murray State is a strong commitment to recruit and retain highly credential 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 our 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.

**Neil V. Weber, Ph.D.**  
**Interim Dean, College of Science,  
Engineering and Technology**

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On behalf of the School of Agriculture, I would like to welcome you to this unique opportunity to celebrate research, scholarships, 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 *Scholars’ Week* event, you will view the numerous ways the University is committed to academic excellence as well as providing the opportunity to explore these avenues.

I would like to commend all participants in this event.

**James A. Rudolph, Ed.D.**  
**Director, School of Agriculture**



**On behalf of the organizing committee and the Undergraduate Research and Scholarly Activity (URSA) office, we would like to welcome you to Murray State University's first annual *Scholars' Week*, a celebration of our students' creativity and of our faculty's commitment to providing our students with an education of the highest quality.**

**As faculty, it is gratifying to see our students develop into scholars who are beginning to push the boundaries of their disciplines in new and exciting directions and to watch them become responsible citizens who are asking questions and working on projects that are making important contributions to our community.**

**To the students who are participating in this year's *Scholars' Week* activities, we commend you for your hard work and for becoming active participants in your education. Your achievements in research, scholarly and creative projects distinguish you from your peers.**

**We invite all of you, participants, students, faculty, administrators and members of the Murray community, to join us in celebrating academic excellence at Murray State University.**

**Scholars' Week Organizing Committee**

Pictured L to R: Kenneth Bowman, Jim McCoy, Howard Whiteman, Zbynek Smetana, David Ferguson, Ken Carstens, Paula Waddill, Marcia Hobbs, and John Mateja (Not pictured: Tracey Bernard, Tom Lough, Fred Miller, and Joy Navan).



**Undergraduate Research and Scholarly Activity (URSA) Advisory Board**

**Howard Whiteman, Ph.D.**  
Biological Science

**Tracey Bernard, Ph.D.**  
Occupational Safety and Health

**Zbynek Smetana, Ph.D.**  
Art

**Tom Lough, Ph.D.**  
Education

**Joy Navan, Ph.D.**  
Education

**Paula Waddill, Ph.D.**  
Psychology

**Fred Miller, Ph.D.**  
Business Administration

**Jim McCoy, Ph.D.**  
Economic and Finance

**David Ferguson, Ph.D.**  
Agriculture

**Kenneth Bowman, Ph.D.**  
Agriculture

**Marcia Hobbs, R.N., D.S.N.**  
Nursing

**Ken Carstens, Ph.D.**  
Geoscience

**John Mateja, Ph.D.**  
Director, URSA



**Monday, April 22, 2002**

**Curriss Center**

## **Oral Sessions**

### **Session 1 – Art, Art History, and History**

**Ohio Room**

**Session Chair: Dr. Zbynek Smetana**

**1:00 p.m. – 2:15 p.m.**

**Nick Alley – Art**

Expression and Symbolism: The Ambiguity of Egon Schiele

**Levi Burkett and Jessica Adkins–Art/Eng. Lit.**

The Authoritative Eye: Photography and the Modernist Aesthetic

**Melinda Grimsley – Art History/History**

Mortis et Vitae Locus: Dirty Pictures in Etruscan Tombs

**Elesha Newberry – Art - Studio**

The Emergence of Judith as a Subject in Renaissance Art

**Sandy Byrd – History**

The Tractor: Its Development and Effects on Farmers in the Pennyryle Region of Kentucky

### **Session 2 – Science and Mathematics**

**Barkley Room**

**Session Chair: Dr. James R. Cox**

**2:30 p.m. – 4:00 p.m.**

**Adam Farley - Chemistry**

Computational and Experimental Approaches to Combating Antibiotic Resistance

**Ann Harper - Biology**

Neuronal Response to a Potential Role of Chondroitin Sulfate in Astrogliosis

**Dawna Ballinger - Geoarchaeology**

Analysis of West Kentucky Ceramics

**Dustin Crider - Physics**

Modeling a Rocket

**Alison Marr – Mathematics**

An Algebra of Kinship Study of the Cherokee Indians

**Chris Robinson – Mathematics**

Cauchy-Mirimanoff Polynomials

## **Senior Art Exhibit**

**April 15 – 28, 2002**

**Curriss Center - 1<sup>st</sup> Floor**

**Amanda Kemp**

## **Poster Sessions**

### **Session 1 – Nursing**

**Mississippi Room**

**2:00 p.m. – 4:00 p.m.**

**01 -- Melissa Boling, Laura Bonnell, Valerie Curd, Megan Furguson, Felecia Florea, Linda Miller, and Dennise Williams**

Pain and the Chronically Ill

**02 -- Melissa Boling, Ashley Calhoun, Valerie Curd, and Linda Miller**

Reducing Stress of Sophomore Nursing Students

**03 -- Laura Bonnell, Deborah Clark, and Jansen Stone**

Nursing Traditions: Tried or True

**04 -- Natalie Bridges, Trisha Grace, Abbey Shelton, and Shanna Stigall**

Quality of Life Indicators

**05 -- Lisa Brown, Deborah Clark, Christy Edwards, Daniel Pellegrino, Abbey Shelton, Shanna Stigall, and Stephanie Summers**

Multidisciplinary Knowledge and Attitudes on Pain Assessment and Management

**06 -- Lisa Brown, Danel Pellegrino, Deborah Sims, and Denise Williams**

Project Demonstrating Excellence: Nursing Web Page Development

**07 -- Jessica Cherry, Felecia Florea, and Danielle Guminski**

Cross-Cultural Women's Health Issues

**08 -- Deborah Clark, Valerie Curd, and Rebecca Nord**

Pain as a Pandimensional Human Condition

**09 -- Brianne Cox, Julie Stewart, Andrea Tanner, and Jenny Wise**

What is Palliative Care

**10 -- Christy Edwards, Ramona Garland, and Alissa Parrish**

Nursing Recruitment and Retention

**11 -- Sarah Elliott, Barbara Hudak-Scheirer, and Cadelia Turpin**

Nutrition & Hydration in Palliative Care Settings.

**12 -- Jessica Eveland, Jennifer Polo, and Jennifer Schaad**

Adoption and Safe Families Act of 1997

**13 -- Rebecca Nord**

Pain Assessment in the Vulnerable Population

**14 -- Rebecca Nord, Lee Ann Keller, Megan Feguson, and Stephanie Summers**

Nursing Quickies

**15 -- Stacy Parson, Staci Walker, Chrissey Rutkowski, and Tiffany Breedlove**

Multidisciplinary Hospice Team

**16-- Andrea Tanner**

Improvement of Quality of Life in Dialysis Patients

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**Tuesday, April 23, 2002**

**Curris Center**

## **Oral Sessions**

### **Session 1 – Psychology, History, Nursing, and Education**

**Ohio Room**

**Session Chair: Dr. Marcia Hobbs  
Dr. Joy Navan**

**12:30 p.m. – 2:00 p.m.**

**Christina Bayens - Psychology**

Attitude Change Relative to Impressions

**Grant Quertermous - History**

Citizen and Soldier: The Double Life of Lloyd Tilghman

**Sandy Smith - Psychology**

Culture, Psychological Distress, and Peer Relationships as Predictors of Children's Life Goals

**M. Susan Wurth - Nursing**

Perceived Barriers to Adherence as Described by Individuals with HIV Disease: An Exploratory Study

**Alisa. F. Mann – Middle School Education**

Assessment Task Integrating Science and Mathematics

**Lauren Wolff – Special Education**

A Brief Overview of CHAMPS: A Proactive and Positive Approach to Classroom Management

### **Session 2 – C-RUI Research Symposium**

**Barkley Room**

**Session Chair: Dr. Howard Whitman**

**1:00 p.m. – 2:30 p.m.**

**C. Jason Albritton - Biology**

Hatching of Rotifer Eggs from Reservoir Sediment

**Kathryn Clifton – Chemistry**

Vertical Distribution of Butyltin Compounds in Sediments of Ledbetter Embayment, Kentucky Lake

**Amanda Crook - Biology**

Morphological Plasticity of Physid Snails from the Ledbetter Embayment

**Joell Hill - Biology**

Surviving Disturbance: The Importance of Physiology, Biomass Allocation, and Reproduction in Wetland Plants

**Thomas Moore – Biology**

Bacterial Activity within the Littoral Zone of Ky Lake

**Yovita Sutanto – Biology/Chemistry**

Microbial Diversity in the Sediments of the Littoral Zone of Ledbetter Embayment of Kentucky Lake

### **Session 3 – Sociology and Economics**

**Ohio Room**

**Session Chair: Dr. James McCoy**

**2:15 p.m. – 3:00 p.m.**

**Megan Hosford - Sociology**

Evidence of African Culture in Three Slave Population Cemeteries

**Elizabeth Seale – Sociology**

The Eating Disorder of America: Spiritual, Political, and Economic Discourses

**Wendy Renee' Threlkel - Economics**

Child Labor: An International Dilemma

### **Session 4 – Modern Languages**

**Barkley Room**

**Session Chair: Dr. Janice Morgan**

**3:30 p.m. – 5:30 p.m.**

**Jason Baumer - German**

The Impact of Johann Sebastian Bach's Well Tempered Clavier on Western music.

**Josh Mason - Spanish/German**

The Euro

**Carol Dawn Arnold – Spanish**

The Role of the Action Anthropologist in the Development of a Hispanic Center

**Zachary Lee Bailey - Spanish**

The Creation of El Centro Hispano in Murray, Ky

**Jonathan Watkins – Spanish**

The Relationship Between Puerto Rico and the United States

**Katherine Weber – Spanish**

Conflict in the Latino/Anglo-American Workplace

**Sandy Smith – Spanish**

A Freudian Interpretation of "La Celestina"

**Jayne Duncan - English/Spanish**

Catalan Independence

### **Session 5 – Sharing Tomorrow:**

#### **Globalizing MSU**

**Ohio Room**

**Session Chair: Dr. Michael Basile**

**3:30 p.m. – 5:30 p.m.**

**Terri Menser – Public Relations**

911's Impact on Foreign Exchange Programs

**Joshua Mitchell – Sociology**

Breaking barriers: Clustering Among International Students

**Kenya Ricard – History**

Honne: Japanese Acculturation

**Josh Mason – Spanish/German**

International Mentoring: Crossing Borders

**Krista Zurkamer – Journalism (Print)**

“Extra”: The Media As a Tool of Internationalization

**Tuesday, April 23, 2002**

**Curriss Center**

## **Poster Session**

### **Session 1 – Sigma Xi-Poster Competition**

**Small Ballroom**

**11:00 a.m. – 1:00 p.m.**

**01 -- Catherine Aubee – Biology/Global Studies**

Breeding and Morphology of *Ambystoma talpoideum* in Western Kentucky

**02 -- Melissa Boling, Laura Bonnell, Valerie Curd, Megan Ferguson, Felecia Florea, Linda Miller, and Dennise Williams - Nursing**

Pain and the Chronically Ill

**03 -- Lisa Brown, Deborah Clark, Christy Edwards, Daniel Pellegrino, Abbey Shelton, Shanna Stigall, and Stephanie Summers - Nursing**

Multidisciplinary Knowledge and Attitudes on Pain Assessment and Management

**04 -- Kelly Willis Bush – Science**

Biotic and Abiotic Sorption-Desorption of Phosphorus from Midwest Forested and Agricultural Streams

**05 -- Thomas Cecil – Engineering Physics**

Creating a Platform for Neuron Growth

**06 -- Jessica Cherry, Felecia Florea, and Danielle Guminski - Nursing**

Cross-Cultural Women's Health Issues

**07 -- Deborah Clark, Valerie Curd, and Rebecca Nord - Nursing**

Pain as a Pandimensional Human Condition

**08 -- Kathryn Clifton – Chemistry**

Vertical Distribution of Butyltin Compounds in Sediments of Ledbetter Embayment, Kentucky Lake

**09 -- Stephen Compton – Biology**

Energetic Costs of Immunocompetence

**10 -- Dustin Crider – Physics**

Modeling a Rocket

**11 -- Chris Crockett - Biology**

Variation in the Schmelzmuster of the Primitive Vole *Ogmodontomys*

**12 -- Whitney Durham - Geosciences**

The Use of Remote Sensing to Detect Urban Change in McCracken County, KY from 1994 to 2001

**13 -- Adam Farley - Chemistry**

Computational and Experimental Approaches to Combating Antibiotic

**14 -- Timothy B. Followell – Chemistry**

Measurement of Chloride Produced in the Metabolism of Chloropropanes Resistance

**15 -- David D. Fox – Psychology**

Victim Ethnicity and Sentencing

**16 -- Amy Jones – Geosciences**

Identifying Coniferous Trees Using Both Leaf-On and Leaf-Off Imagery

**17 -- William D. Jones – Geosciences**

Comparison of Unsupervised Classifications of AVIRIS Data Using Various Techniques

**18 -- Joshua Seay Kitchens – Chemistry – Part 1**

**19 -- Srinivassa Reddy Buggana – OSHA – Part 2**  
Do Environmental Pollutants Affect Cancer-fighting Potential in Humans?

Part 1: Chemical Analysis

Part 2: NK Cytotoxicity Assay

**20 -- Mary Mandt - - Biology**

Riparian Buffer Width Requirements for Aquatic and Semi-aquatic Stream Salamanders

**21 -- Elaine S. McAdams – Biology**

The Evolution of Survival Strategies in Endoparasites of Mammals

**22 -- Christy Starr Meredith – Biological Sciences**

Lethal and Sublethal Effects of Increasing Nitrate Concentration on *Ambystoma Mexicanum* Embryos and Larvae.

**23 -- Deidre N. Merejo - Mathematics**

Combat Multipliers on the Battlefield

**24 -- Thomas Moore – Biology**

Bacterial Activity Within the Littoral Zone of Kentucky Lake

**25 -- Rebecca Nord - Nursing**

Pain Assessment in the Vulnerable Population

**26 -- Rebecca Nord, Lee Ann Keller, Megan Ferguson, and Stephanie Summers - Nursing**

Nursing Quickies

**27 -- Daniel Rushing – Psychology**

Current Events Knowledge and Pessimism

**28 -- Kosta Seaford – Chemistry**

Occurrence of Polychlorinated Naphthalenes in Pine Needles Collected from Westernmost Kentucky

**29 -- Nicole Shelton – Biology/Chemistry**

The Study of a Pigment-Protein Complex

**30 -- Satinder Sidhu – Biology/Chemistry**

Autonomous Differentiation of the Head in Chick Embryos

**31 -- Chanda Brooke Smith – Environmental Engineering Technology**

Hydrology and Morphology of the Drakes Creek Watershed

**32 -- Takeisha Thompson – Psychology**

Helping Behaviors in Abusive Situations

**33 -- Gareth T. Turner – Geosciences**

Mapping of Change in Las Vegas Region Using Multi-temporal Remote Sensing

**34 -- Amanda Wallace – Psychology**

Paranormal Beliefs and Personality Traits

**35 -- Jason Waller – Biology**

The Ecological Impacts of Stream Alteration and Homogenization on Aquatic Vertebrates

# Tuesday, April 23, 2002

## Curriss Center

### Poster Session

#### Session 2 – Psychology

Mississippi Room

1:30 p.m. – 2:30 p.m.

**01 -- Danielle Brooks - Psychology**

Eyewitness Credibility as Perceived by Jurors

**02 -- Julie Brown - Psychology**

Factors Contributing to Job Satisfaction

**03 -- Allison K. Driver – Psychology**

The Effects of Visible Tattoos, Body Piercings, and Gender

**04 -- David D. Fox – Psychology**

Victim Ethnicity and Sentencing

**05 -- Tasha Knoth – Psychology**

Relationship Between Parental Self-Concept and Individual Self-Concept

**06 -- Katrina Koch – Psychology**

Internet Usage

**07 -- Rosalin P. Lowery – Psychology**

Gender Effects in Sentencing for Violent Crime

**08 -- Kelly Oliver – Psychology**

Is that your final Answer?

**09 -- Julia Ruyon – Psychology**

Stress, Health, and Leisure

**10 -- Daniel Rushing – Psychology**

Current Events Knowledge and Pessimism

**11 -- Annie Stewart – Psychology**

Alcohol Knowledge and Attitudes

**12 -- Takeisha Thompson – Psychology**

Helping Behaviors in Abusive Situations

**13 -- Amanda Wallace – Psychology**

Paranormal Beliefs and Personality Traits

**14 -- Amanda Weitlauf – Psychology**

First Name Sterotypes

**15 -- Christina Wendel – Psychology**

Differences in Attitudes Toward Romantic Infidelity

### Technology Cup

#### Graduate Competition

Freed Curd Auditorium

Industry and Technology Building

Moderator: Ms. Linda Miller

4:00 p.m. – 6:00 p.m.

**01 -- Richard Robinson**

Faculty Advisor: Dr. David Roach

Vibrating Rectangular Membrane

**02 -- Yuhong Chen**

Faculty Advisor: Dr. George Rice

24-7 Network Solutions

**03 -- Telisa Walls**

Faculty Advisor: Dr. Donna Wasson

Rags to Riches

**04 -- Carsten Jung, Thorsten Nelle,  
and Michael Gassaway**

Faculty Advisor: Dr. Fred Miller

Campus Closet – B2C Virtual Bookstore

**05 -- Brian Hoover and Grant Norwood**

Faculty Advisor: Dr. Dwayne Driskill

Developing a Model Tractor Safety Demonstration

### Sigma Xi Banquet

Small Ballroom

6:30 p.m. – 8:30 p.m.

Presiding: Howard Whiteman

**Wednesday, April 24, 2002**

**Curris Center**

## **Poster Session**

### **Session 1 – General Session\***

**Small Ballroom**

**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

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Vertical Distribution of Butyltin Compounds in Sediments of Ledbetter Embayment, Kentucky Lake

**15 -- Stephen Compton – Biology\*\***

Energetic Costs of Immunocompetence

**16 -- Craig Coombs – Engineering Technology**

Analysis of Water Quality

**17 -- Brianne Cox, Julie Stewart Andrea Tanner, and Jenny Wise - Nursing**

What is Palliative Care

**18 -- Dustin Crider – Physics\*\***

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Part 2: NK Cytotoxicity Assay

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**Ferguson, and Stephanie Summers – Nursing\*\***

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Is That Your Final Answer?

**44 -- Stacy Parson, Staci Walker, Chrissey Rutkowski, and Tiffany Breedlove - Nursing, Social Work**

Multidisciplinary Hospice Team

**45 -- Terry D. Ray – Geology**

Geochemical Processes Within the Littoral Zone of

Kentucky Lake Reservoir

**46 -- Lisa Rowlett – Sociology**

"McDonaldization in Action"

**47 -- Julia Ruyon – Psychology**

Stress, Health, and Leisure

**48 -- Daniel Rushing – Psychology\*\***

Current Events Knowledge and Pessimism

**49 -- Kosta Seaford – Chemistry\*\***

Occurrence of Polychlorinated Naphthalenes in Pine

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**51 -- Satinder Sidhu – Biology/Chemistry\*\***

Autonomous Differentiation of the Head in Chick

Embryos

**52 -- Chanda Brooke Smith – Environmental Engineering Technology\*\***

Hydrology and Morphology of the Drakes Creek Watershed

**53 -- Annie Stewart – Psychology**

Alcohol Knowledge and Attitudes

**54-- Andrea Tanner - Nursing**

Improvement of Quality of Life in Dialysis Patients

**55 -- Takeisha Thompson – Psychology\*\***

Helping Behaviors in Abusive Situations

**56 -- Gareth T. Turner – Geosciences\*\***

Mapping of Change in Las Vegas Region Using Multi-temporal Remote Sensing

**57 -- Amanda Wallace – Psychology\*\***

Paranormal Beliefs and Personality Traits

**58 -- Jason Waller – Biology\*\***

The Ecological Impacts of Stream Alteration and Homogenization on Aquatic Vertebrates

**59 -- Amanda Weitlauf – Psychology**

First Name Stereotypes

**60 -- Christina Wendel - Psychology**

Differences in Attitudes Toward Romantic Infidelity

## **President's Scholars' Week Luncheon\***

**Large Ball Room**

**Presiding: Dr. John Mateja**

**11:30 a.m. – 1:00 p.m.**

**President's Welcome:**

**Dr. F. King Alexander**

**Recognition of:**

- 1) MSU Alumni Association Distinguished Researcher Award Recipient  
Presenter: Dr. F. King Alexander**
- 2) Sigma Xi Award Recipients  
Presenter: Dr. Haluk Cetin**
- 3) Technology Cup  
Graduate Winner and Undergraduate Finalists  
Presenter: Ms. Linda Miller**
- 4) URSA Grant Recipients  
Presenter: Dr. John Mateja**
- 5) NCUR Travel Recipients  
Presenter: Dr. John Mateja**
- 6) Best Student Essays  
Presenter: Dr. William Forman**

**\*Open to all Scholars' Week student presenters and their faculty mentor/sponsors.**

**Wednesday, April 24, 2002**  
**Industry and Technology Building**  
Freed Curd Auditorium

## **Technology Cup**

### **Undergraduate Competition**

**Moderator: Ms. Linda Miller**

**4:00 p.m. – 6:00 p.m.**

**01 -- Joseph Robertson**

**Faculty Advisor: Dr. Victor Raj**

Database for Vendors

**02 -- Joyce Day**

**Faculty Advisor: Dr. Victor Raj**

Web cost calculator a ColdFusion project  
for Murray State University

**03 -- Shelly Henshaw, Jessica Wood, Leslie  
Rheinecker, Amy Cateberry, and Andrea Ray**

**Faculty Advisor: Dr. Donna Wasson**

Using a PDA in the Class

**04 -- Tim Johnston**

**Faculty Advisor: Dr. Cassidy Palmer and  
Dr. Dwayne Driskill**

Evolution of Transparencies to Online Movie

**05 -- Andrea Owens**

**Faculty Advisor: Dr. Jay Zirbel**

Virtual MSU

**06 -- Terry D. Ray**

**Faculty Advisor: Ms. Jeanie Robertson**

Electronic Portfolios: Present Your Best

**07 -- Jan Livers, Beth House, and Cheri Barrett**

**Faculty Advisor: Dr. Judy Brookhiser**

Park Accessibility Presentation

**08 -- Pam Etemesi**

**Faculty Advisor: Dr. Pam Brewer**

Technical Writing Theory in the Web Resume

**Friday, April 26, 2002**  
**Clara M. Eagle Art Gallery**  
Price Doyle Fine Arts Building

## **OMAS Annual Student Art Exhibit\***

**Reception 6:00 p.m. – 8:00 p.m.**

**\*This exhibit will be open to the public from  
April 26 to May 15, 2002.**

**April 8 – April 30, 2002**  
**Waterfield Library Exhibit**

**IN PRINT: Murray State University**  
**Undergraduate and Graduate Student Publications**

**Murray State Student Authors**

A. Farley  
E. Musselman  
Rachel R. Peterson  
Angela L. Newberry  
Kathleen Brennan O'Neill  
Adam Gambouras  
Suresh Harriharan  
J. Baust  
J. Neale  
K.D. Seaford  
J.D. Morton  
Rebecca Conn  
Grant Quertermous  
Theresa Sabo  
Amy M. Barnhart  
Lauren R. Lindsey  
Gaye U. Haynes  
Kimberly M. Dunn  
Stephanie L. McCarty  
Ellie C. Quirk  
Christina Bayens  
Virginia Ashby  
Ashley D. Billington  
Emily E. Brame  
Dana L. Sanderson  
Sandy A. Smith  
Pamela Morris-Shirkey  
Christine Fahl  
Jennifer Schinner  
Brian L. Keenan  
Derek J. Somerville  
Michael P. Schrader  
Jeffrey d. Carlson  
Christi L. Ensor  
Jaye Bilyeu  
E. Jeanne Peters  
Willa Suggs  
T. Matthew Pack II  
Jamie Hunter  
Jacob A. Ryan  
Leigh Ann Wright  
Anthony M. Wilson  
Linda Metcalf  
Joel Royalty  
Denise Akoury

**Murray State Faculty Co-Authors**

Dr. J. R. Cox  
Dr. Renae Duncan  
Dr. Laura Liljequist  
Dr. Bommana G. Loganathan  
Dr. S. White  
Dr. D. A. Owen  
Dr. Thomas B. Posey  
Dr. Alysia D. Ritter  
Dr. J. Sickel  
Dr. Paula J. Waddill  
Dr. Daniel L. Wann

## **Hatching of Rotifer Eggs from Reservoir Sediment**

**C. Jason Albritton, Biology**

**Sponsor/Mentor: Dr. David White**

The effects of drying and rewetting on rotifer egg bank hatching were examined for various sediments of a mainstream reservoir embayment, Kentucky Lake, Kentucky, USA. The sites examined were a littoral zone with an annual drying and wetting cycle, a permanently wetted embayment, and a floodplain that was only rarely inundated. Ten rotifer species and two other zooplankton species were hatched from sediments following rewetting. Surface sediments normally experiencing drying and rewetting cycles showed greater species diversity and number of total individuals hatched than permanently wetted sediments. Hatching eggs from greater sediment depths responded quicker to the rewetting cue than eggs from surface sediments. Hatching success in response to drying and rewetting demonstrates that diapause plays a role in zooplankton dynamics of this reservoir ecosystem, which may give a survival advantage to certain species because of their ability to survive complete desiccation when bottom sediments are exposed.

## **Expression and Symbolism: The Ambiguity of Egon Schiele**

**Nick Alley, Art**

**Sponsor/Mentor: Dr. Peggy Schrock**

This paper will examine the art of Egon Schiele within the context of both the German/Austrian Expressionist and Symbolist movements at the turn of the century. Schiele will be seen to be an important transitional figure whose work crosses boundaries.

## **The Role of the Action Anthropologist in the Development of a Hispanic Center**

**Carol Dawn Arnold, Spanish**

**Sponsor/Mentor: Dr. Janice Morgan and Mica Howe**

With the increasing number of Hispanics in the region, the sound of Spanish can be heard throughout many towns. Hispanics now work in our factories, on our farms, and in other industries. Hispanics have other needs such as housing, education, and health care. Does this create a language barrier that is solely a problem for Hispanic population? Should the non-Hispanic community take an active role in breaking the language barrier? The action anthropologist works in "conjunction with community members to discover community problems and to identify potential solutions. Action anthropologists attempt both to understand communities and to influence the rate and direction of change within these communities" (van Willigen, 57). Is participation from both Hispanic and non-Hispanic populations a vital element in the success of the Center? In what areas of everyday life are most communication problems found within the two communities? Can these problems be solved? The role of the action anthropologist is to facilitate participation from both communities to find possible solutions that may prevent more serious communication problems in the future.

## **Breeding and Morphology of Ambystoma Talpoideum in Western Kentucky**

**Catherine Aubee, Biology/Global Studies**

**Sponsor/Mentor: Dr. Howard Whiteman**

*Ambystoma talpoideum*, commonly known as the mole salamander, reaches the northern extremities of its range in western Kentucky. As a facultatively paedomorphic species, *A. talpoideum* presents an opportunity to study the comparative life histories and potential interactions of metamorphic and paedomorphic individuals within the same populations. The presence of paedomorphic individuals was previously confirmed at two sites on the Ridley Farms property in western Calloway County. The initial focus of this research was to use information provided by Dr. Floyd Scott to locate seven possible breeding sites of *A. talpoideum* in the Land Between the Lakes (LBL) area. Sampling continued through March 2002. Only one LBL site, dubbed Serendipity, yielded paedomorphic *A. talpoideum*. Paedomorphic breeding activity at Serendipity appeared to have concluded by mid-February. Metamorphic individuals were discovered at the Ridley sites in late December, and showed signs of breeding activity (indicated by cloacal swelling and presence of spermatophores) during the same time frame as paedomorphic individuals. This continued throughout February and waned in both morphs in early March. The timing is atypical because previous studies suggest that paedomorphic individuals generally cease breeding earlier than metamorphic individuals. Exceptions have been noted when paedomorphic salamanders have only recently reached maturity, but individuals from the Ridley ponds were comparable in size to those from the Serendipity site. No LBL populations have yet been discovered which contain both paedomorphic and metamorphic individuals. All original sites will be sampled periodically to continue gathering population data and determine, where applicable, approximately when breeding activity ceases.

## **The Creation of El Centro Hispano in Murray, Kentucky**

**Zachary Lee Bailey, Spanish**

**Sponsor/Mentor: Dr. Mica Howe**

I will explain my idea of the process of developing a Hispanic Center (a 501)(c)(3)(organization) here in Murray that offers services to clientele that experience complications due to language and cultural barriers. The mission of the center is to facilitate communication among Hispanic and non-Hispanic communities by providing translation services, cultural awareness programs, and services to businesses, health care facilities, government agencies, and other entities.



## **Analysis of West Kentucky Ceramics**

**Dawna Ballinger, Geoarchaeology**

**Sponsor/Mentor: Dr. Kit Wesler**

Murray State University's archaeology lab recently acquired The West Kentucky Project collection from the University of Illinois. The collection consists of sixteen archaeological sites from western Kentucky excavated during the 1980's. All the sites in the collection are Prehistoric Mississippian. My project consists of analyzing the ceramics in each of these sites. This involves taking measurements of plate rims and handles. The goal of this project is to apply and test Dr. Kit Wesler's ceramic dating formulas.

## **The Impact of Johann Sebastian Bach's Well Tempered Clavier on Western Music**

**Jason Baumer, German**

**Sponsor/Mentor: Dr. Milton Grimes**

This research focuses on the tuning system of Well temperament devised by J.S. Back in the early 1720's, and the impact thereof on western music.

## **Attitude Change Relative to Impressions**

**Christina Bayens, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

In this study the formation of attitudes across three different scenarios was investigated. There were 58 male and female participants who read a series of three scenarios about a target person and then rated the person on an 11-statement survey after each scenario. Some of the participants saw a picture along with the scenarios. Two 2x2x3 mixed factorial ANOVAs were performed. Significant differences were found for the main effect of gender match, meaning participants tended to rate scenario persons of their own gender less favorably than scenario persons of a different gender. Significant differences were also found for time, meaning participants rated the person favorably after the positive scenario, less favorably after the negative scenario, and favorably after the final positive scenario. These findings may imply that a positive impression that has turned negative may have the opportunity to change back to positive with enough positive information.

## **Pain and the Chronically Ill**

**Melissa Boling, Laura Bonnell, Valerie Curd, Megan Furguson, Felecia Floria,**

**Linda Miller, and Denise Williams, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

The purpose of this project was to critique research regarding pain management of persons who are chronically ill. The research articles utilized in this project dealt with a variety of chronic illnesses, including psychological illness, terminal cancer, HIV, heart disease, and chronic obstructive pulmonary disease. Design and Rigor of Critiqued Research: Three of the research articles were quantitative and one was qualitative. Two of these research studies had threats to their rigor, while the other two were found to be rigorous. However, the threats were minimal and were addressed within the critiques of those articles. Implications and Recommendations: The studies displayed that the chronically ill are not receiving adequate pain relief since their pain is underestimated and under treated by health care professionals. Therefore, changes need to be made in pain assessment and treatment. First, the health care professionals must believe that pain is subjective, a personal incomparable experience. Secondly, health care providers need improved education about pain management in order to treat it effectively. Also, more sensitive pain assessment scales and clearer medication guidelines for treating pain need to be implemented. Lastly, it is necessary for health care providers to be aware of support groups available for individuals who are experiencing pain. Thus, many changes must be made within the health care system in order to improve pain management of the chronically ill.

## **Nursing Traditions: Tried or True**

**Laura Bonnell, Jansen Stone, and Deborah Clark, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

Laura Bonnell, Jansen Stone, and Deborah Clark Our Project Demonstrating Excellence will be presented at the Scholars' Week Presentation. This project involves evidence-based practices and nursing today.

## **Eyewitness Credibility as Perceived by Jurors**

**Danielle Brooks, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

This study investigates the way mock jurors perceive how credible a female eyewitness is based on the way that she is dressed and her age. This study used a well dressed and a poorly dressed African American female who was either a young adult or an elderly adult. The participants read the testimony of the eyewitness while viewing a photograph of her, then rated her credibility on several scales.

## **Factors Contributing to Job Satisfaction**

**Julie Brown, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

This study dealt with the predicting factors of job satisfaction. Seventy-seven Murray State University students answered two questionnaires on supervisor and coworker support, one questionnaire on job satisfaction, and one demographics survey. The results are that both men and women find perceived support by their supervisor as a strong indicator of job satisfaction. Although it was hypothesized that supervisor and coworker support would not be contributing factors in job satisfaction for males, the study was very informative nonetheless.

## **Do Environmental Pollutants Affect Cancer-fighting Potential in Humans?**

### **Part 2: NK Cytotoxicity Assay**

**Srinivasa Reddy Buggana, Occupational Safety and Health**

**Sponsor/Mentor: Dr. Bommanna Loganathan and Dr. Margaret Whalen**

The objective of this study was to evaluate the effect of polychlorinated biphenyls (PCBs), chlorinated pesticides and polynuclear aromatic hydrocarbons (PAHs) present in sediment, fish and mussel tissues on human natural killer (NK) lymphocytes' function (its ability to kill cancer cells) under in vitro laboratory conditions. Samples used for this study include: sediments (NIST SED9, SRM 1941a), fish (NIST FSH4) and mussel tissue (SRM 1974a). Cytotoxicity studies were conducted using 24h pre-incubated NK cells (of male and female volunteer donors) with the organic contaminants from sediments, fish and mussel tissue to determine the effect on NK cell function in vitro. Standard methods were used to extract organic contaminants, NK cell preparation, cell viability and NK cytotoxicity (51Cr release assay: K562 cancer cells were used as target cells) tests. The results revealed that crude extracts containing all analytes in the samples inhibited NK cell function with highest percent inhibition (>95%) by mussel (SRM 1974a) and fish (FSH4) extracts followed by sediment (SED4) 55% and marine sediment (sediment SRM 1941a). The sample extracts after silica gel column clean-up and separation of PCBs and pesticides into fractions, the fractions had no effect on NK cell function at 24 h exposure. However, 4-day exposure exhibited about 30% and 12% in mussel and fish extracts. The negative effect observed in the crude extract may be due to synergistic, negative effect of the mixture of contaminants including polynuclear aromatic hydrocarbons, and other unknown organochlorines (as evidenced by EOX data and the presence of high percentage uncharacterized organochlorines) on human NK cell function.

## **The Authoritative Eye: Photography and the Modernist Aesthetic**

**Levi Burkett and Jessica Adkins, English Literature, Art**

**Sponsor/Mentor: Dr. Peter Murphy**

The process of photography is, due to its technical and separated nature, an inherently modernist medium. The artist must translate the image of an object from the binocular, or three dimensional perspective of the human eye, into a monocular or two-dimensional product, which is then viewed as a three dimensional object. This separation from the viewer allows the artist to manipulate her/his art piece in a number of different ways that form a disjunction from the viewer that is, at its root, representative of the modernist aesthetic. Historically, Modernism sought to describe the disorder and disillusion that affected society after World War I. With violent changes occurring in all forms of society, the Modernists used such techniques as disassociation to "come to grips with" the world that was chaotically and permanently different from anything that had come before. Photography does the same thing as it attempts to capture a moment of time and artistically render it with the disassociated viewer in mind. This presentation will discuss these ideas and illustrate them with original photos.

## **Biotic and Abiotic Sorption-desorption of Phosphorus from Midwest Forested and Agricultural Streams**

**Kelly Wills Bush, Water Science**

**Sponsor/Mentor: Dr. Susan Hendricks**

Biotic and abiotic sediment phosphorus release mechanisms were determined for a forested and an agricultural stream, and the agricultural stream's confluence with a reservoir. Sediments were collected throughout summer, fall and winter. Phosphorus concentrations in aquariums filled with sediment and stream water were monitored at two-week intervals. Biotic phosphorus release was measured as alkaline phosphatase activity (APA). Abiotic release was measured by killing sediment microbes in aquaria. Equilibrium phosphorus concentration (EPC), phosphate sorption indices, and forms of phosphorus were measured in sediments at each site. EPC had the highest indices in the forested stream. Phosphate sorption indices had high correlation with sediment organic matter content in early and late summer. The forested stream had the lowest index in early summer but increased in late summer. Phosphorus adsorbed to FeOOH was the highest fraction at each site. Sediment APA was not related to sediment organic matters or streams SRP. APA was typically lowest in the forested stream and was highest in all sites in early summer. APA in all sites decreased from May to September, and increased slightly in October. Finer sediment particles in the agricultural stream and in the embayment were responsible for higher APA and phosphate sorption index values, and for lower EPC.

## **The Tractor: Its Development and Effects on Farmers in the Pennyrile Region of Kentucky**

**Sandy Byrd, History**

**Sponsor/Mentor: Dr. Stephanie Carpenter**

The development of the tractor was affected by the need for farmers to do more work and do it more efficiently and, in turn, the tractor affected great changes in the way farm people lived. This paper looks at the changes that took place in farming technology that lead to the development of tractors, especially the general- or all-purpose type, and how the effect these machines had on people, particularly those in the Pennyrile Region of Western Kentucky. Their experiences were recorded in interviews that took place in the spring of 1991 and were invaluable in helping bring to life what it was like to farm without the tractor.

## **Creating a Platform for Neuron Growth**

**Thomas Cecil, Engineering Physics**

**Sponsor/Mentor: Dr. John Crofton**

The goal of the project is to selectively grow neurons from chick embryos in a pattern that will allow for a quantitatively measured output response resulting from an input stimulus. The project naturally divides itself into two distinct tasks: the first is to etch patterns onto the surface of a silicon (Si) wafer into which the neurons will be seeded and hopefully grow. The growth and characterization of the neurons represents the second portion of the project. Completion of the first task requires several steps: (1) designing a mask using a CAD program; (2) fabricating a mask which serves as a stencil which can be used to transfer the pattern to the Si wafer; (3) using the mask to transfer the pattern of a masking material onto the Si wafer using a photolithographic process; (4) etching the Si wafer; (5) removing the masking material from the Si wafer. The masking material serves as a barrier against the etching process allowing only selected portions of the Si wafer to be etched or removed. The etching process uses reactive ions that are accelerated towards the surface of the wafer where they knock loose Si atoms and promote a chemical reaction with the Si surface. The etch is terminated when a trench of the desired depth has been formed. The masking material can then be removed leaving the desired pattern in the silicon wafer. Neurons can then be seeded in the patterned trenches.

## **Pain as a Pandimensional Human Condition**

**Deborah Clark, Rebecca Nord, and Valerie Curd, Nursing**

**Sponsor/Mentor: Dr. Nancy France**

The purpose of this project was to synthesize the review of literature on pain in three dimensions: pain assessment in vulnerable populations; pain in the chronically ill; and multidisciplinary knowledge and attitudes of pain and pain management. Design: Research reviewed and critiqued consisted of 12 quantitative and one qualitative study. The synthesis supported the phenomenon that pain is a pandimensional human condition manifested as different experiences and meanings for individuals; however, the management of pain is not based on this phenomenon but rather on the nurses' and doctors' personal beliefs on pain management. The synthesis also revealed that nurses and health care providers need to know and understand that pain management is developed through the person's lived experience and that the most efficient methods of treatment may also include complimentary healing modalities. Implications and Recommendations: Implications that emerged from this synthesis are primarily directed to the educational preparation of nurses and health care providers to increase their knowledge, awareness and empathy of the lived experience of pain and its management. Recommendations focus on the need for qualitative research to explore the lived experience of pain and educational preparation to focus on holistic assessment and holistic treatment modalities.

## **Multidisciplinary Knowledge and Attitudes on Pain Assessment and Management**

**Deborah Clark, Daniel Pellegrino, Shanna Stigall, Abbey Shelton, Lisa Brown, Christy Edwards, and Stephanie Summers, Nursing**

**Sponsor/Mentor: Dr. Nancy France**

The purpose of this project was to critique research on health care professionals knowledge and attitude toward chronic pain and pain management. The articles span several disciplines including physician, registered nurse, licensed practical nurse, and social workers. Design: the research studies consisted of four quantitative studies. In several of the studies, there were various threats to rigor of the study. However, these were minimal and are addressed in the critiques. Implications and Recommendations: as these studies were critiqued are all quantitative, the recommendation is for future to be qualitative to provide information on the phenomenology of pain. There is an increased need for education among the multidisciplinary team regarding pain assessment, pain management, and pain evaluation.

## **Vertical Distribution of Butyltin Compounds in Sediments of Ledbetter Embayment, Kentucky Lake**

**Kathryn L. Clifton, Chemistry and Center for Reservoir Research**

**Sponsor/Mentor: Dr. Bommanna Loganathan and Dr. David Owen**

Butyltins (BTs) are widespread environmental contaminants. BTs are used in a variety of consumer, domestic, and industrial products. Aquatic pollution by butyltin derivatives has become a matter of great concern, due to their widespread distribution in water, sediment, and bioaccumulation in benthic organisms and fish with accompanying harmful health effects. The objective of this study was to evaluate the vertical distribution of monobutyltin (MBT), dibutyltin (DBT) and tributyltin (TBT) in Kentucky Lake sediments in order to understand the historical and recent contamination by the compounds. A sediment core about 1 meter long collected from the Ledbetter Embayment was sectioned at 5 cm intervals and analyzed for BT derivatives using standard methods. The results of this study provided information on the vertical distribution (historical and recent contamination) of TBT, DBT, and MBT. The presence of up to 4 ng TBT/g dry wt sediment in 5-10 cm sections of the sediment core indicates TBT contamination is continuing even after restrictions on the use of TBT in antifouling paints. Greater concentrations (15ng DBT/g dry wt.) of DBT in 15-30 cm core sections suggest historical contamination as well as degradation of TBT to the comparatively less toxic DBT. Leaching of TBT-containing anti-fouling paints from ocean going ships is a possible source of TBT. Discharge of municipal sewage and industrial waste waters into this watershed may account for the presence of the MBT and TBT compounds detected in recent sediment deposits.

## **Energetic Costs of Immunocompetence**

**Stephen Compton, Biology**

**Sponsor/Mentor: Dr. Terry Derting**

The amount of energy required to maintain a functioning immune system and mount an immune response was studied in wild white-footed mouse, *Peromyscus leucopus*. I tested the null hypotheses 1) the energy cost of maintaining a functioning immune system is not a significant energy demanding process, 2) there is no significant energetic cost of mounting an immune response, and 3) other systems of the body are not affected by changes in the immune system. To determine the amounts of energy used, daily metabolic rate (DMR), resting metabolic rate (RMR), and the masses of vital organs were measured. The energy required to maintain an immune system was studied by comparing a control group to a group that was immunosuppressed. There were no significant differences found in the DMR, RMR or organ masses between control and experimental mice. To measure the energetic cost of mounting an immune response, control mice were tested against mice injected with sheep red blood cells (SRB C) and phytohemagglutinin (PHA) to stimulate the humoral and cell-mediated components of the immune system, respectively. There were no significant differences in DMR or RMR between groups; however, both the wet and dry masses of the small intestine and testes were significantly lower in the SRBC-PHA treated mice. My findings suggested that maintaining a functioning immune system was not a significant energy demanding process. Mounting an immune response, however, was a significant energy demanding process that necessitated trade-offs in allocation of energy within the organism.

## **Analysis of Water Quality**

**Craig Coombs, Environmental Engineering Technology**

**Sponsor/Mentor: Dr. Mike Kemp**

The research being done is using data that was collected last year from Pleasant Run Creek in central Kentucky. The data was initially collected because it was thought that mine run off was affecting the water quality in the stream. The data collected included pH and conductivity. I am using statistical analysis of the data to see if there are any correlations between the pH and conductivity, conductivity and flow, flow and pH. The data will also be looked at to see if there are any areas that seem to be more impacted than others. If there are areas that tend to be more impacted then I will try to see if there is a connection between that impact and the surrounding land use. This would help to identify that cause of the problem.

## **Modeling a Rocket**

**Dustin Crider, Physics**

**Sponsor/Mentor: Dr. Hamid Kobraei**

Using applications of Newton's Second Law, I modeled the motion of a rocket moving in the vertical direction. The ideal case was treated first. Then the variation of g with respect to height was added. Then the third simulation added the effect of air resistance to the rocket's motion. The velocities and accelerations were found using the derived equations. The height the rocket flew was graphed.

## **Variation in the Schmelzmuster of the Primitive Vole *Ogmodontomys***

**Chris P. Crockett, Biology**

**Sponsor/Mentor: Dr. Robert A. Martin**

Schmelzmuster is the microhistological pattern of apatite prisms (crystals) composing the occlusal enamel surface of mammalian molars. Three basic enamel types (radial, tangential, lamellar) are defined in arvicolid rodents based on the arrangement and orientation of individual prisms. Schmelzmuster characteristics have been utilized in several studies to help interpret phylogenetic relationships in arvicolids, but individual variation in the schmelzmuster is essentially unknown. The purpose of this study is to examine several aspects of schmelzmuster variation in adult *Ogmodontomys poaphagus* molars from the Meade Basin of southwestern Kansas. Molars were examined from three stratigraphically superposed localities spanning a period of approximately 1.70 million years. Measurements were taken of enamel thickness and percent composition of enamel types. Qualitative assessments included the determination of degree of enamel development and approximate location of schmelzmuster layers. Results indicated some individual variation in enamel thickness and percent composition of tangential and radial enamel, but no statistically significant difference in these variables. A significant increase in the development of tangential enamel was observed, but was not accompanied by a change in overall enamel width. Well-developed lamellar enamel, a defining feature of the Old World *Mimomys* schmelzmuster, was not observed. These results support the assertion that schmelzmuster is a consistent and genetically controlled character mosaic that can be used effectively for phylogenetic interpretation, and confirm suggestions in the literature that *Ogmodontomys* is distinct from *Mimomys*.

## **Morphological Plasticity of Physid Snails from the Ledbetter Embayment**

**Amanda Crook, Biology**

**Sponsor/Mentor: Dr. Howard Whiteman**

Plasticity allows organisms to mitigate the effects of variable environments. Due to low mobility and the fact that they cannot readily change their habitat, plasticity plays an important role in the life of snails. For example, previous studies have shown that physid snails exhibit predator-induced morphology shifts in the presence of crayfish and pumpkinseed sunfish, two of its major predators. Previous research I conducted on Kentucky Lake gave no clear evidence for plasticity. The snails increased in size across the study period, but after removing body size effects, no clear evidence for plasticity was observed. This suggests either that: 1. this population is canalized; 2. we were unable to detect plasticity among individuals because we measured morphometric change within the population; 3. snails exhibit plasticity, but each population is exposed to the same environmental cues and thus exhibits the same phenotype over time; or 4. the combination of not detecting individual change and populations exhibiting the same plastic response. A mesocosm experiment was conducted at Hancock Biological Station to test these competing hypotheses. Snails from Ledbetter Embayment were placed in each pond with one of four treatments: no predators (control), fish, crayfish, and fish and crayfish. At the end of the experiment the snails were collected from the ponds and measured using morphometric software to assess plasticity responses. Results will be discussed in regard to the above hypotheses.

## **Reducing Stress of Sophomore Nursing Students**

**Valerie Curd, Melissa Boling, Ashley Calhoun, and Linda Miller, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

Each semester, sophomore students enter the nursing program with a great amount of stress. As senior nursing students, we tried to find different ways to help reduce the stress that these students encounter. Several different techniques were used during their check-offs, such as deep breathing exercises, playing soft music in the background, and stretching. The check-offs consist of each student demonstrating the ability to accurately take vital signs, sterile dressing change, administer oral medications as well as injections. The stress levels were evaluated before and after the check-offs. The poster will reflect the results of these stress-reducing techniques.

## **The Effects of Visible Tattoos, Body Piercing, and Gender**

**Allison K. Driver, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

A sample of 40 Murray State University undergraduate students were asked to complete a survey that would measure their attitudes toward pictures of men and women and their desirability as potential employees. Twenty people viewed a packet of pictures of women, one with no body modification, one with a tattoo, one with an eyebrow piercing, and one with a tattoo and an eyebrow piercing. They were then asked to answer questions about their feelings toward these pictures as potential employees. The other twenty participants viewed packets of pictures of men with matching body conditions and answered the same questions. Scores supported the hypothesis that pictures with body modification would be rated less positively than pictures with no modification. However, scores refuted the hypothesis that gender would play a role in employee desirability.

## **Catalan Independence**

**Jayne Duncan, English/Spanish**

**Sponsor/Mentor: Dr. Janice Morgan and Dr. Leon Bodevin**

Ask a person from Barcelona their nationality and they are likely to answer that it is "Catalan" instead of Spanish. Catalonia, the northwestern region of Spain, has always had an indisputably distinct feel from the rest of Spain, and politically, the region has attempted to separate in the past. Even though Catalonia currently lives in peace with Spain as one of the seventeen regions of the nation, the Catalan spirit of independence and cultural singularity continue to define the area today. The character of the Catalan region is rooted, to a certain degree, in its history of relations with Spain, and it is worthwhile to study those relations in order to understand the types of identity issues that may arise between peoples of the same nation. More importantly, it allows an opportunity to investigate the types of actions that lead to peace and harmony between culturally divergent regions under the same governmental leadership. This paper seeks to investigate the type of conflicts that have occurred between Catalonia and Spain, both overly and ideologically, their history of relations in general, and most importantly, the cultural distinctions that subsist in Catalan culture today in the areas of language, economy, and politics. The paper will demonstrate how through these differences, Catalonia is able to preserve their sense of independence while participating in nationhood with the rest of Spain.

## **The Use of Remote Sensing to Detect Urban Change in McCracken County, Ky from 1994 to 2001**

**Whitney Durham, Geoscience**

**Sponsor/Mentor: Dr. Haluk Cetin**

Over the past decade, urban change has taken place more rapidly and more extensively than in previous years. As urban areas expand, the surrounding land and environments become increasingly taxed. The use of remote sensing gives planners a better perspective of large areas and allows them to plan for expansion in a more effective manner. The use of change detection methods enhances these perspectives. In this study, Landsat Thematic Mapper (TM) imagery of the McCracken County area from 1994 and 2001 are used for change detection. The software used for the processes is ERDAS Imagine 8.

## **Nursing Recruitment and Retention**

**Christy Edwards, Alissa Parrish, and Ramona Garland, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

The purpose of this project is to assist the Roads Scholar team in recruiting prospective students for MSU, in particularly to interest students in the field of nursing. The plan was to present to two area high schools about MSU and the nursing profession. The chosen schools were Henry County High School and Fulton City High School. The prospective audience ranged from sophomores to senior students with an interest in sciences and health. As nursing students, we collaborated with the high schools, Roads Scholar team and the Nursing Department to present the benefits of higher education and the opportunities of a career in nursing to recruit students to our profession. The project included a literature review, a description of the population and their risk factors, the nurse's role in recruitment and retention and recommendations for future projects. Included in the presentation was a power point display with the advantages of a higher education, the opportunities at Murray State University and the excellence of the Nursing Department. Each student compared the effectiveness of the presentation by completing a pre-evaluation and post-evaluation. The poster that will be displayed will show the results of the evaluations, the importance of nursing in health care and future recommendations for further recruitment and retention for the Nursing Department.

## **Nutrition and Hydration in Palliative Care Settings**

**Sarah Elliott, Barbara Hudak-Scheirer, Cadelia Turpin, Social Work and Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

This poster will present guidelines and misconceptions related to nutrition and hydration in palliative care settings.

## **Adoption and Safe Families Act of 1997**

**Jessica Eveland, Jennifer Polo, and Jennifer Schaad, Social Work**

**Sponsor/Mentor: Dr. Merry Miller**

The Adoption and Safe Families Act of 1997 (ASFA) was implemented to decrease the amount of time that children drift in the foster care system and to increase the chances that a child in foster care will soon find a nurturing, safe home. We have thoroughly analyzed circumstances surrounding the creation of this piece of legislation, the policy itself, the programs that were implemented as a result of ASFA, the intended and actual outcomes of the act, and its effect on the profession of social work. We will display pieces of the information that we have obtained through our research to inform the general public of critical issues that surround child welfare.

## **Computational and Experimental Approaches to Combating Antibiotic Resistance**

**Adam Farley, Chemistry**

**Sponsor/Mentor: Dr. James R. Cox**

The rise in bacterial resistance to antibiotics has reached a crisis level and is considered a public health emergency. Pathogenic bacteria have countered the overuse of antibiotics by expressing a multitude of gene products that render the drugs ineffective. A family of bacterial enzymes that serves as detoxifying agents of aminoglycoside antibiotics has been identified as aminoglycoside 3'-phosphotransferases (APH(3')). Studies on a specific enzyme, APH(3')-IIIa, have revealed a pi-stacking interaction between the Tyr-42 residue of the enzyme and the adenine ring of a bound nucleotide. The presence of the pi-stacking interaction has provided a basis for exploiting this important contact for inhibitor design and the testing of various nucleosides that can stack with Tyr-42 and block the nucleotide-binding site of APH(3')-IIIa. Enzyme kinetic studies on various nucleosides and nucleoside-type molecules with APH(3')-IIIa have established which type of aromatic systems can block the active site of the enzyme. Computational methods were also utilized to map and explore the electrostatic environment of APH(3')-IIIa and to rationalize the kinetic studies on a variety of potential inhibitors. Overall, experimental and computational studies have revealed a strict electrostatic requirement for inhibitors that target the nucleotide-binding site of APH(3')-IIIa and enabled the development of a molecular template for inhibitor design strategies. This research is a significant step toward the design of APH type enzyme inhibitors and has implications in combating antibiotic resistance.

## **Measurement of Chloride Produced in the Metabolism of Chloropropanes**

**Timothy B. Followell, Chemistry**

**Sponsor/Mentor: Dr. Robert F. Volp**

Chloropropanes are synthetic chemicals produced on a wide-scale basis for industrial use. There are 29 chloropropanes. Over a half dozen of them are often used as organic solvents and intermediates, and some have been found in supplies of groundwater. It is suspected that some chloropropanes are also carcinogenic, although they have not been studied extensively. The toxicity of chloropropanes is attributed to the way in which the body metabolizes them. The most significant source of chloropropane metabolism is thought to be by the hepatic cytochrome P-450 system, which consists of oxidative enzymes in the liver. The P-450 system can be studied in vitro, in a test tube using fractions of rat liver cells, allowing researchers to study the effects of metabolism without performing them in living animals. The oxidative metabolism of various types and concentrations of chloropropanes was studied using a chloride-selective electrode. The oxidative metabolism of all chloropropanes yields chloride ions as a metabolite, and the quantity of chloride ions released directly reflects the amount of chloropropane metabolized. One goal of this investigation was to develop a system in which one can observe a detectable change in the amount of chloride present in the system due to the metabolism of chloropropanes. Such an observable change would provide many important clues about the nature and rate of chloride metabolism, corresponding directly to the amount of chloropropane metabolized. Results showed that measurements using a chloride-selective electrode were inconclusive, and the oxidative metabolism of chloropropanes should best be studied using an alternative method.

## **Victim Ethnicity and Sentencing**

**David D. Fox, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Studies have shown that defendants convicted of crimes against blacks receive less severe punishments than defendants convicted of crimes against whites. Few studies evaluate the subjects' attitudes about ethnic groups and whether or not those attitudes are related to sentencing. The purpose of this study was to investigate the roles of racial attitude and victim ethnicity in the sentences recommended for crimes against blacks and whites. Participants read one of two scenarios about a criminal convicted of robbery. One scenario involved a black victim and the other involved a white victim. After reading the scenarios, the subjects recommended either probation or jail time and indicated the length of their recommended punishment. Participants also completed a questionnaire about their racial attitudes. The results are evaluated in terms of their implications for jury decisions.

## **Mortis et vitae locus: Dirty Pictures in Etruscan Tombs**

**Melinda Grimsley, History/Art History**

**Sponsor/Mentor: Dr. Zbynek Smetana**

Much has been written on the topic of Etruscan funerary art, particularly on the wall paintings contained within Etruscan tombs. There are some Etruscan tombs that are very rarely mentioned, and even more rarely shown; they contain erotic imagery. Of these tombs, I will discuss two, the Tomba dei Tori (Tomb of the Bulls) and the Tomba Della Fustigazione (Tomb of the Whipping). These Etruscan tomb paintings, like wall paintings and sculpture of the Romans and vase painting of the Greeks, reflect a dimension of ancient society that is unknown to us today. My purpose is not to discuss every lurid detail of these tomb paintings. Rather, it is to explain the erotic figures in Etruscan tombs in terms of their cultural utility. Interpretations of the images found in the Tomb of the Bulls and the Tomb of the Whipping are of great number and diversity. One interpretation has been handed down to us by later Etruscans' Roman contemporaries; this holds that Etruscans were simply morally bankrupt and given to frequent indulgence of their animalistic whims. A second deals with the apotropaic significance of grotesque images; in other words, the frescoes were intended to ward off evil. Similar to this is the theory, previously mentioned briefly, that the images suggest fertility and continued virility after death. Last, and I believe most likely, is the theory that the frescoes of these tombs link the deceased owner of the tomb with the cult of Dionysus.

## **Cross-Cultural Women's Health Issues**

**Danielle Guminski, Felecia Florea, and Jessica Cherry, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

This is a cross-cultural poster presentation, which will include information about women's health. Our group collected pamphlets about an array of women's health issues such as pregnancy, baby care, and general female health, in order to help nurses better serve clients who speak a language other than English. All of the pamphlets were put together in a binder for easier access. Our group then researched how nurses can better care for multi-cultural clients. Since our country is now a "salad bowl" society, we felt that this project could help improve health care for the non-English speaking cultures.

## **Neuronal Response to and Potential Role of Chondroitin Sulfate in Astrogliosis**

**Ann Harper, Biology**

**Sponsor/Mentor: Dr. David Canning**

Brain trauma and neurodegenerative diseases are the basis for much of the research being conducted today. When trauma is induced to the brain, an inflammatory response takes place termed gliosis. Gliosis was mimicked in vitro using astrocytes extracted from P1 rat pups cultured with beta amyloid protein. Culture matrices were conditioned with an in vitro astrocytic response to beta amyloid protein. With TRITC labeling, deposition of chondroitin sulfate from the astrocytes during their reaction to beta amyloid was demonstrated. Neurite outgrowth was tested by replacing astrocytes with retinal ganglia cells dissected from 6-day chick embryos. The final step of measuring neurite outgrowth of the retinal ganglia cells was accomplished by obtaining photomicrographs of the cells after culturing for various lengths of time. Our data shows evidence that the deposition of chondroitin sulfate by the astrocytic response was inhibitory to neurite outgrowth. Beta amyloid protein, thought to be an inhibitor to neurite outgrowth, had no effect on neurite outgrowth while those matrices conditioned by astrocytes depositing chondroitin sulfate showed significant inhibition to neurite outgrowth.

## **Surviving Disturbance: The Importance of Physiology, Biomass Allocation, and Reproduction in Wetland Plants**

**Joell Hill, Pre-Medicine**

**Sponsor/Mentor: Dr. Bill Spencer**

The objective of this research is to understand the relative importance of physiology, biomass allocation, and reproductive fitness associated with enhanced survival of flooding by wetland plants within the Ledbetter Bay mudflat. The research is important to basic scientific knowledge because it may lead to a better understanding of the mechanisms that lead to plant survival of disturbance. *Justicia americana* (a terrestrial plant, that is subjected to flooding during the summer season) was collected from the mudflat region and grown in the greenhouse. The photosynthetic rates of non-flooded leaves were compared to the photosynthetic rate of the new leaves produced under flooded conditions. Results showed that the new leaves exhibited a higher photosynthetic rate, which indicated an acclimation to flooding. Increased use of bicarbonate in addition to carbon dioxide for photosynthesis, development of specialized tissue such as aerenchyma and/or elevated production of plant hormones such as ethylene could possibly explain the observed acclimation. These will be studied in subsequent experiments.

## **Evidence of African Culture in Three Slave Population Cemeteries**

**Megan Hosford, Sociology**

**Sponsor/Mentor: Dr. Lillian Daughaday**

According to anthropologist Melville Herskovitz, African culture was not destroyed by slavery meaning that evidence of African culture should be found in the customs of slave populations in the New World. Today these African "survivals" can be found in both the historical and archaeological records. Herskovitz's theory will be tested by studying the burial patterns, burial customs, and artifacts found in three slave population cemeteries in the Caribbean, New York, and Arkansas.

## **Identifying Coniferous Trees Using Both Leaf On and Leaf Off Imagery**

**Amy Jones, Geosciences**

**Sponsor/Mentor: Dr. Haluk Cetin**

This project involves approximating the locations of coniferous trees on both leaf on and leaf off imagery. The study will use unsupervised classification, change detection, and other methods to find which image is better for identifying conifers .

## **Comparison of Unsupervised Classifications of AVIRIS Data Using Various Techniques**

**William D. Jones, Geoscience**

**Sponsor/Mentor: Dr. Haluk Cetin**

The Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) collects 224 bands of data in wavelengths from 400 to 2500 nanometers. It can be used for pollution detection in land/air/water, mineral exploration, land management, and other characterizations of the earth's surface. Unsupervised classifications were compared using randomly selected bands versus bands specifically chosen to detect vegetation, urban areas, and water.

## **Do Environmental Pollutants Affect Cancer-fighting Potential in Humans? Part 1: Chemical Analysis**

**Joshua Seay Kitchens, Chemistry**

**Sponsor/Mentor: Dr. Bommanna Loganathan**

The environment and biota are contaminated with multitude of hazardous chemicals. However, there is little information available on how two or more contaminants affect cellular level functions in wildlife and humans. The objective of this study was to evaluate the effect of polychlorinated biphenyls (PCBs), chlorinated pesticides and polynuclear aromatic hydrocarbons (PAHs) present in sediment, fish and mussel tissues on human natural killer (NK) lymphocytes' function (its ability to kill cancer cells) under in vitro laboratory conditions. Samples used for this study include: sediments (NIST SED9, SRM 1941a), fish (NIST FSH4) and mussel tissue (SRM 1974a). Analytical procedures included, Soxhlet extraction, K-D concentration, Florisil dry column clean-up, Silica gel column chromatography and instrumental analysis using gas chromatograph with electron capture detector. The crude extracts and cleaned extracts of the samples were used for NK cytotoxicity assay. This poster presents the concentrations of PCBs, chlorinated pesticides and PAHs in sediment and fish tissues. Cytotoxicity studies were conducted using 24h pre-incubated NK cells (of male and female volunteer donors) with the organic contaminants from sediments, fish and mussel tissue to determine the effect on NK cell function in vitro. The results of cytotoxicity assay are presented in Part II of the poster.

## **Relationship Between Parental Self-Concept and Individual Self-Concept**

**Tasha Knoth, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

This study investigates the relationship between an individual's self-concept and that individual's perception of his/her parents' self-concept. Participants' own self-concept was measured with the Self-Esteem Rating Scale (SERS). The SERS was also modified to evaluate perceptions of mother's self-concept and of father's self-concept. Participant gender was also considered as a predictor of individual self-concept and perceived parental self-concept. Possible applications based on this research are discussed.

## **Internet Usage**

**Katrina Koch, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

This study focused on believability (or reliability) of general and current event information found on the Internet. The investigator hypothesized that several predictor variables (Computer Anxiety, Internet Anxiety, Prior Use, Gender, and Times and Minutes spent on the computer for various types of information) would be correlated with these two types of believability. Participants were 63 undergraduate students (17 male, 46 female) from Murray State University. This was a multiple regression study. One questionnaire packet was used. One questionnaire was The Computer Anxiety Scale (Cohen & Waugh, 1989). The Internet Anxiety questionnaire was adapted from the Computer Anxiety Scale (Cohen & Waugh) by changing the word "computer" to "Internet." The investigator created all other questions. The study found that gender was significantly correlated to general believability, males tend to believe general information on the Internet more than females do. General believability and current event believability were significantly correlated. The alpha level was .05 for all tests.

## **Gender Effects in Sentencing for Violent Crime**

**Rosalin P. Lowery, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Differences in sentencing are an increasing problem in the criminal justice system. The gender of the defendant is an important issue when it comes to this differentiation. Women may receive more lenient sentences than men for some crimes but more severe sentences for other crimes. Jurors' beliefs and stereotypes may affect those kinds of sentencing decisions. This study investigated how participants' decisions about sentences for murder were affected by the gender of the murderer and the relationship of the murderer to the victim (spouse or parent). The relationship of our findings to previous research on gender disparities is considered.

## **Riparian Buffer Width Requirements for Aquatic and Semi-aquatic Stream Salamanders**

**Mary Mandt, Biology**

**Sponsor/Mentor: Dr. Howard Whiteman**

Deforestation reduces forest habitat, increases temperature, decreases moisture, and decreases the quality of leaf litter on the forest floor. Streamside deforestation also increases water temperature, creates bank instability, and increases siltation. Furthermore, streamside deforestation reduces stream habitat variation by removing leafy and woody debris. All of these changes may greatly affect populations of aquatic and semi-aquatic salamanders, which are an important component of stream ecosystems. For example, one vulnerability of these salamanders to deforestation is their specialized modes of respiration. Many salamander species are lungless and therefore require alternate modes of respiration. Most aquatic species use gills for respiration, whereas semi-aquatic species utilize cutaneous respiration. Because of this, most aquatic salamanders require relatively cool, clear, well oxygenated streams, and most semi-aquatic species require high moisture content on the forest floor. Preserving riparian buffer strips along streams is thus an important objective for maintaining salamander populations. However, there is considerable variation in current practices of federal and state agencies. This literature review will determine the minimum buffer width around streams necessary to maintain viable populations of aquatic and semi-aquatic salamanders. The results of this review will be valuable to wildlife managers and conservation biologists interested in preserving the biodiversity and integrity of riparian stream ecosystems.

## **Assessment Task Integrating Science and Mathematics**

**Alisa F. Mann, Middle School Education**

**Sponsor/Mentor: Dr. Joy Navan**

To begin this task, my students have just finished learning about how to construct a stem and leaf plot, the key components of its layout, and the data that can be interpreted from the plot. In their science class, the students will have been following the weather and discussing weather patterns and temperatures. For this assignment, I will collaborate with the science class to use the data that has been gathered on temperatures in five different cities throughout the United States to construct a stem and leaf plot. Since I will also be tracking five cities in Kentucky, including Paducah, we will compare the temperatures around the country to what we are experiencing here at home at the same time period. When the task is completed, the students will be able to say whether they want to stay home or travel to one of these other cities.

## **An Algebra of Kinship Study of the Cherokee Indians**

**Alison Marr, Mathematics**

**Sponsor/Mentor: Dr. Kelly Pearson**

Algebra of kinship is an area of mathematical sociology, which applies group theory to tribal relationships. This talk (based on a senior honors thesis) will discuss our studies of the Cherokee tribe's seven clans and their marriage structure. We will include discussions of algebraic structures as needed to understand the premises of the algebra of kinship as outlined by H.C. White. Other factors involved in kinship analysis, including the preferential mating visible in the Cherokee's kinship system, are also considered in our analysis.

## **The Euro**

**Josh Mason, Spanish and German**

**Sponsor/Mentor: Dr. Janice Morgan**

When the European Union formed it promoted the idea of Continental Nationalism. There has been progression in the Union in that it has formed the Euro. This new coin is accepted in 12 of the 15 member states. My paper will incorporate my double major. I will talk on the past of the Euro, who makes the decisions and how Germany and Spain have been affected by the Euro. Germany was the forerunner of the Euro and Spain is one of the last countries to join the bandwagon so I will also show the contrasts.

## **International Mentoring: Crossing Borders**

**Josh Mason, Spanish and German**

**Sponsor/Mentor: Dr. Michael Basile**

Murray State can become more international by means of mentoring. Murray has increased the number of Study Abroad programs in the last five years, but has the Murray State University campus become more international? My work is a review of the mentoring programs that are available to international students and alternate program proposals that will entice more international students to come to Murray. My work also compares other universities to MSU to have a basis to critique.

## **The Evolution of Survival Strategies in Endoparasites of Mammals**

**Elaine S. McAdams, Biology**

**Sponsor/Mentor: Dr. Leon Duobinis-Gray and Dr. Howard Whiteman**

Parasites are the largest and oldest group of organisms on the planet. Throughout evolutionary time, parasites have had the ability to survive and reproduce using strategies that involve evading host defensive mechanisms, killing their host, and/or adapting to their host. One might then conclude that these strategies would be similar phylogenetically. However, it is possible that a parasite's survival can be more strongly influenced by the environment than by phylogeny. This literature review will explore the possibility that environment rather than phylogeny is responsible for the strategies parasites use to survive and reproduce.

## **911's Impact on Foreign Exchange Program**

**Terri Menser, Public Relations**

**Sponsor/Mentor: Dr. Michael Basile**

I will be surveying a sample of foreign students to find out their reaction to September 11 to determine if their feelings have leveled off since the event. The survey will also gauge how September 11 affected participation in foreign exchange projects. The international students will be questioned as to what improvements can be made to better accommodate international students in effort to counteract the possible negative effects September 11 had on foreign exchange participation.

## **Lethal and Sublethal Effects of Increasing Nitrate Concentration on *Ambystoma Mexicanum***

**Embryos and Larvae.**

**Christy Meredith, Biological Science**

**Sponsor/Mentor: Dr. Howard Whitman**

Results of recent studies have suggested that amphibians are affected by high levels of nitrogen found in agricultural run-off, resulting in decreased growth rates, abnormalities, and eventually mortality. Nitrate ( $\text{NO}_3^-$ ) is considered the least lethal of these nitrogen compounds; however,  $\text{NO}_3^-$  may result in sublethal effects under levels of long-term, chronic exposure. In order to investigate the effects of  $\text{NO}_3^-$  on an endangered species of salamander, *Ambystoma mexicanum*, individuals of this species were exposed to a series of  $\text{NO}_3^-$  concentrations ranging from 0 to 500 mg/L from the early embryonic stage until approximately 45 days after hatching. Exposure during the embryonic did not significantly influence survivorship to the larval stage or on larval success. However, severe mortality occurred in the highest concentrations once the larval stage was reached. Thus far, results suggest that sublethal effects on larvae occurred in the mid-range concentrations while no effects were visible in the lowest concentrations. This study suggests that  $\text{NO}_3^-$  can have chronic effects on amphibians.

## **Combat Multipliers on the Battlefield**

**Deidre N. Merejo, Mathematics Department**

**Sponsor/Mentor: Dr. Tan Zhang**

The vast improvements in technology have greatly increased combat power and effectiveness on the battlefield. There are two systems in particular that has evolved and improved with time. The two such systems are the Blackhawk UH-60A helicopter and the Aviator Night Vision Imaging System (ANVIS). I will discuss the evolution and the different missions that the Blackhawk UH60A are used for in the Military. I will also describe the major components of this helicopter and show its capabilities and some of its limitations. ANVIS is an important piece of equipment for Army Aviators. I will discuss the purpose and characteristics of the ANVIS. I will also describe the key components of the ANVIS, to include the monocular components and its mechanical control characteristics. Another aspect is the operational sequence of the ANVIS. I will also discuss the how to recognize operational defects as well as cosmetic blemishes of the ANVIS.

## **Breaking Barriers: Clustering Among International Students**

**Joshua Mitchell, Sociology**

**Sponsor/Mentor: Dr. Michael Basile**

It is my belief that there is a sociocultural impediment aside from language barriers that hinders cross-cultural interaction between or among international students. By utilizing sociometric surveys/instruments, I will present my hypothesis as to why 'clustering' (or international students amassing in droves of their own culture) occurs, and attempt to provide resolutions and ways we can combat this on Murray State's campus, making it a more globalized entity.

## **Bacterial Activity Within the Littoral Zone of Kentucky Lake**

**Thomas Moore, Biology**

**Sponsor/Mentor: Dr. Susan Hendricks**

Unlike natural lakes few microbial studies have focused on man-made reservoirs; hence little is known about the role of bacteria in nutrient cycling in these important ecosystems. Reservoirs undergo human controlled water level fluctuations that are temporally opposite to what occurs in natural lakes. Summer pool water levels are higher than winter pool for recreational, transportation and flood control reasons. Bacterial activity in the sediments of Ledbetter Embayment, located on the western coast of Kentucky Lake, was examined during summer, fall and winter seasons of 2000 in order to assess the potential role of sediment bacterial communities in phosphorus and carbon cycling. Littoral zone sediment samples were collected from inundated and non-inundated sites and assayed for bacterial biomass, percent organic matter, bacterial productivity, and alkaline phosphates activity. Preliminary analyses suggest that bacterial (activity?) productivity, biomass and phosphates activity are correlated with degree of inundation and percent organic matter within the sediments. Studies assessing the effects of wetting and drying on bacterial community activity within the littoral zone are currently underway.

## **The Emergence of Judith as a Subject in Renaissance Art**

**Elesha Newberry, Studio Art**

**Sponsor/Mentor: Dr. Zbynek Smetana**

The Apocryphal heroine Judith emerged into a full-fledged subject in Renaissance art. My presentation will trace her journey from a symbol of virtue in medieval art to an ambiguous figure of female power in the late Renaissance. Focusing on Donatello's sculpture Judith and Holofernes, a piece that straddles these times and manners of expression, will allow me to discuss the how and why of the symbols traditionally used to express this story and the ones that would come into use by analyzing their presence and meaning in Donatello's work.

## **Pain Assessment in the Vulnerable Population**

**Rebecca Nord, Nursing**

**Sponsor/Mentor: Dr. Nancey France**

The purpose of this project was to critique research on studies based upon pain assessment and pain perception in vulnerable populations to evaluate implications for nursing practice. The research articles critiqued included six quantitative studies. The topics of these articles included: adolescent's perception of pain in labor; the rate of pain perception in individuals with Down's Syndrome; determinates of pain reactivity in low-birth weight neonates; pain assessments in cognitively impaired children; influence of cognitive impairment on pain assessment in palliative care units; and virtual reality as a distraction for children receiving chemotherapy. Although there were several threats to the rigor of the studies, we were able to explore implications for nursing practice and provide recommendations for future studies regarding pain assessment in the vulnerable population.

## **Nursing Quickies**

**Rebecca Nord, Lee Ann Keller, Megan Ferguson, and Stephanie Summers, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

This project is our senior Project Demonstrating Excellence (PDE). This project contains theory and practice: practice that is both theory-driven and researched based and will be articulated with identified community needs. The "Nursing Quickies" are a pocket sized quick reference guide for nurses. "Nursing Quickies" contain information that nurses use on a daily basis or may find difficult to remember such as lab values, abbreviations, and equations. The initial plan is to review a copy of the "Nursing Quickies" previously made and make any corrections needed. Next, come up with as many ideas as possible for how the "Quickies" could be advertised and sold. The intermediate plan is to obtain estimates of cost to determine sales price and then contact local agencies (Lourdes, WBH, MCCH, JPMC, PCC etc.) to determine level of interest. The ultimate plan will be to compile, advertise, market, and distribute "Nursing Quickies" to local nursing students and nurses.

## **Is That Your Final Answer?**

**Kelly D. Oliver, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Participants in this study acted as potential witnesses. They viewed a scene from a movie then answered questions related to the scene. The questions varied in type (some were neutral, some were leading questions) and in content. Participants were also asked to give a written account of what they had viewed. The main goals of the study were to determine if a particular type of leading question influenced how the "witnesses" would respond and if the gender of the participant was related to which type of leading question most influenced recall. The results are discussed in terms of their implications for faulty eyewitness testimony.

### **Multidisciplinary Hospice Team**

**Stacy Parson, Staci Walker, Chrissey Rutkowski, Tiffany Breedlove, Social Work, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

Hospice uses a multidisciplinary team approach to caring for its patients. Even though there are many members of the hospice care team, this project focuses on four of the members of this team. These members are the social worker, nurse, physician and chaplain.

### **Citizen and Soldier: The Double Life of Lloyd Tilghman**

**Grant Quertermous, History**

**Sponsor/Mentor: Dr. Bill Mulligan**

Lloyd Tilghman was a decorated Confederate General described by Jefferson Davis as the "gallant defender of Fort Henry" (Neuman 1922). However, this West Point educated General was 45 when the civil war broke out, and his early life and accomplishments are largely overlooked by historians. An example of this can be seen in a recent biography of General Tilghman, in which 2 pages of the 120 total pages in the book are devoted to his life before the outbreak of the war. This paper will examine the life of Lloyd Tilghman with special emphasis on his life and career before the outbreak of the Civil War. I intend to prove that his greatest accomplishments lie not in his military victories but in his professional undertakings before the war as a skilled civil engineer and railroad planner.

### **Geochemical Processes within the Littoral Zone of Kentucky Lake Reservoir**

**Terry D Ray, Geology**

**Sponsor/Mentor: Dr. George Kipphut**

The decay, diagenesis and dissolution of organic and inorganic material within sedimentary environments may have a significant impact on ecological processes occurring within the overlying water. For example, sediment-water chemical fluxes have been estimated to supply a significant portion of the nutrient requirements for primary production within the water column. This study focused on the measurement of several biogeochemical processes related to primary productivity and nutrient cycling within the seasonally wetted littoral zone of Kentucky Lake reservoir. Benthic chambers were used to measure biogeochemical fluxes across the sediment-water interface. In addition, sediment was collected at each experiment site in order to characterize dominant grain size, particle size distribution and organic matter content in order to better understand the relationship between biogeochemical fluxes and the nature of the sedimentary environment.

### **Honne: Japanese Acculturation**

**Kenya Ricard, History**

**Sponsor/Mentor: Dr. Michael Basile**

The paper is on finding out how Japanese students adapt to the campus and what ideas and programs can be implemented to make life here exciting and enjoyable.

### **Cauchy-Mirimanoff Polynomials**

**Chris Robinson, Applied Mathematics**

**Sponsor/Mentor: Dr. Kelly Pearson**

For an integer  $n \geq 2$  define

$$P_n(X) = (X + 1)^n - X^n - 1.$$

Let  $E_n(X)$  be the remaining factor of  $P_n(X)$  in  $\mathbb{Q}[X]$  after removing  $X$  and the cyclotomic factors  $X + 1$  and  $X^2 + X + 1$ . Then

$$P_n(X) = X(X+1)^{\epsilon_n} (X^2 + X + 1)^{\delta_n} E_n(X)$$

where for even  $n$   $\epsilon_n = \delta_n = 0$ ; for odd  $n$   $\epsilon_n = 1$  and  $\delta_n = 0, 1, 2$  according as  $n = 0, 2, 1 \pmod{3}$ . In 1903 Mirimanoff conjectured the irreducibility of  $E_n(X)$  over  $\mathbb{Q}$  when  $n$  is prime. This talk will focus on eliminating any factors of degree six. A characterization of the only possible factors of  $P_n$  that are of degree six will be given as well as the primes for which these polynomials are possible factors of  $E_n$ .

### **"McDonaldization In Action"**

**Lisa Rowlett, Sociology**

**Sponsor/Mentor: Dr. Lillian Daughaday**

The purpose of this presentation is to discuss the increasing rationalization of society, or as George Ritzer calls it, the McDonaldization of society. A highly rational society emphasizes efficiency, predictability, calculability, and control. This paper will demonstrate how these principles are at work in various facets of our life--education, health care, work, and leisure activities. The negative aspects of this "McDonaldization" will be examined.

## **Stress, Health, and Leisure**

**Julia Runyon, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

This study investigated whether leisure lessens the relationship between stress and health, and explored if different types of leisure affect the relationship differently. Students (n 0) completed three questionnaires: a stress questionnaire, a perceived health questionnaire and a demographics survey that included items regarding leisure. Pearson product-moment correlations indicated that those who perceived themselves to be in better health tended to be feeling less stressed. Those who spent more time engaging in leisure activities by themselves tended to spend more time participating in leisure with others. Two separate multiple regressions indicated that neither the amount of time engaged in leisure alone nor the time spent doing leisure with others mediated the stress-health relationship. Suggestions for future research regarding the affects of leisure activities on the stress-health relationship are discussed.

## **Current Events Knowledge and Pessimism**

**Daniel Rushing, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

The influence of the media, specifically news media, on a person's overall attitudes is the focus of this study. The purpose of this study was to evaluate the relationship between a person's knowledge of current events in five categories (American politics, the economy, international affairs, sports, and entertainment) and the person's overall attitude about life. Participants were given three questionnaires: one measured their knowledge of each of the aforementioned five categories, a second measured their positive and negative attitudes about events in each of those categories, and a third measured their overall pessimism about life in general. Information on participants' exposure to news media was also collected. The results may add to our knowledge of how exposure to news media and knowledge of current events are related to a person's attitudes about those events and about life in general. Studying these relationships can be helpful in determining what benefits or detriments may be related to exposure to news media.

## **Occurrence of Polychlorinated Naphthalenes in Pine Needles Collected from Westernmost Kentucky**

**Kosta Seaford, Chemistry**

**Sponsor/Mentor: Dr. Bommanna Loganathan**

Polychlorinated naphthalenes (PCNs) are a group of 75 compounds and are widespread environmental pollutants. PCNs are structurally similar to polychlorinated dibenzo-p-dioxins (PCDDs), dibenzofurans (PCDFs) and biphenyls (PCBs) and cause harmful health effects in wildlife and humans. Despite being ubiquitous and toxic, much less is known about environmental distribution, transport and effects of PCNs on wildlife and humans. Pine needles have been demonstrated as a fixed site, regenerative, annual monitoring matrix for the evaluation of local, regional and national distribution of lipophilic air pollutants. In this study, distribution of PCN congeners in pine needles collected from the surroundings of Paducah Gaseous Diffusion Plant (PGDP), Marshall County in westernmost Kentucky and a highly contaminated superfund site (Brunswick, GA) is described. Standard analytical methods including, Soxhlet extraction, multi-layer column cleanup, alumina column chromatography and HPLC-Hypercarb separation were performed. Quantitation of analytes was done using HRGC-HRMS. The results revealed the following order of total PCN concentrations. Superfund site at Brunswick, GA (18,934 pg g<sup>-1</sup> dry wt.) > Industrial site (Paducah Gaseous Diffusion Plant) (100 pg/g) Residential location (98 pg/g). Comparison of PCN isomer composition in the samples indicates that a shift from higher chlorinated naphthalenes (T5CN to T8CN) to lower chlorinated naphthalenes (T2CN to T4CN) from highly contaminated sites to relatively less contaminated sites respectively. The distribution pattern of PCNs in the samples provides evidence for atmospheric contamination of PCNs and transport of lower chlorinated naphthalenes from contaminated sites to pristine areas.

## **The Eating Disorder of America: Spiritual, Political, and Economic Discourses**

**Elizabeth Seale, Sociology**

**Sponsor/Mentor: Dr. Lillian Daughaday**

This paper explores the cultural meaning of "thinness" in the U.S. and the corresponding rise of the "eating disorder", specifically, anorexia bulimia nervosa. Spiritual meanings are examined as well as political and economic influences.

## **The Study of a Pigment-Protein Complex**

**Nicole Shelton, Biology/Chemistry**

**Sponsor/Mentor: Dr. Jin Liu**

Many sea animals such as lobster, crab, and shrimp are blue. When these animals are cooked, as we know, they appear red. This is due to the denaturing of the proteins, in which the red pigment becomes visible. In nature, the deep blue color is seen because of the complexes between the red pigment and the proteins. This phenomenon is well known. However, interactions between the pigment and proteins are still unknown. The purpose of this project is to investigate the binding site between the pigment and proteins in the pigment-protein complexes and also the color change (red to blue) which is caused by the interactions between the pigment and proteins. For this research, four synthetic pigments labeled with different halogens were prepared and their structures confirmed by the way of UV, NMR, and Mass spectrometry. The blue pigment-protein complex was then isolated from the carapace of the lobster and purified. Currently we are working on reconstitution of the natural pigment-protein complex with four synthetic pigments. UV spectra of the new pigment-protein complexes will provide information regarding the interactions between the red pigment and the proteins.

## **Quality of Life Indicators**

**Abbey Shelton, Natalie Bridges, Trisha Grace, and Shanna Stigall, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

The purpose of this Project Demonstrating Excellence was to look at quality of life indicators by auditing charts at a hospital. Quality of life indicators include pain assessment, pain management, advanced care planning, and hospice referrals. The goal was to evaluate these indicators on patients' currently admitted in the hospital. After evaluating the charts, the plan was to offer assistance in improving the quality of life of the patients whose charts were evaluated.

## **Autonomous Differentiation of the Head in Chick embryos**

**Satinder Sidhu, Biology/Chemistry**

**Sponsor/Mentor: Dr. David Canning**

The growth and differentiation of the presumptive head region in the chick embryo has been studied. In amniote embryos the head forms from a small region of epithelium immediately anterior to the notochord. This area, referred to as the prechordal plate, is thought to be under instructive signaling influences emanating from the underlying endoderm that ultimately dictates the morphogenesis and cytodifferentiation of cells of the head. However, it is not known how cell interactions in the prechordal plate lead to morphogenesis of the head tissues. In this study chick eggs were incubated to various stages of development in the first 24 hours post-laying. Embryos were removed from the eggs and the presumptive head region dissected away from the rest of the embryo. This small piece of tissue was then cultured in isolation for periods of 24 to 48 hours. The cultures were cryosectioned and probed with fluorescently labeled monoclonal antibodies to reveal specific patterns of adhesion molecules and extracellular matrix molecules. Images of the cultures were digitized with peltier-cooled photomicroscopy in order to detect and record expression of specific epitopes. The resulting distributions of these molecules can be related to a cellular mechanism suggesting that the head develops autonomously and independent of the embryonic axis.

## **A Freudian Interpretation of "La Celestina"**

**Sandy A. Smith, Spanish**

**Sponsor/Mentor: Dr. Leon Bodevin**

"La Celestina" is a play written by Fernando de Rojas and first published in Spain in 1499. As one of Spain's finest literary works, this drama reveals the emotion and, at times, deception involved in amorous relationships. Some 400 years after the publication of "La Celestina," renowned psychologist, Sigmund Freud, introduced his psychoanalytic theory, created to examine and explain the personality and behavior of all humans. Freud's theory evoked controversy because of its focus on sexuality; however, when applying this theory to the characters of "La Celestina," Freud's ideas seem plausible. Applying Freud's psychoanalytic theory adds another dimension to "La Celestina's" intelligent, yet impulsive, characters.

## **Culture, Psychological Distress, and Peer Relationships as Predictors of Children's Life Goals**

**Sandy Smith, Psychology**

**Sponsor/Mentor: Dr. Renae Duncan**

This psychological study investigated whether Caucasian and Hispanic children differ in terms of their psychological distress, the nature of their peer relationships, and their future life goals. Participants include children in the 6-8 grades from Western Kentucky and Southern Illinois.

## **Hydrology and Morphology of the Drakes Creek Watershed**

**Chanda Brooke Smith, Environmental Engineering Technology**

**Sponsor/Mentor: Dr. Andrew Kellie**

After reviewing some previous research performed by fellow classmates on a watershed area in the Jackson Purchase, I found it interesting to go further. The research that I am performing consists of analyzing the hydrology, morphology, and geology of a watershed in the Western Kentucky coalfield. The purpose of this study is to determine the influence of the coalfields on the hydrology and morphology of the watershed. Maps have been digitized to help portray my results. A field visit has provided concrete examples of certain hydrological and geological characteristics.

## **Alcohol Knowledge and Attitudes**

**Annie Stewart, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

The attitudes and knowledge that people hold about alcohol use vary greatly. Research that targets both aspects may aid in learning more about the use and abuse potentials for alcohol. This study is directly aimed at finding out about the attitudes (personal and familial) and the knowledge that college students have about alcohol and the relationship of those attitudes and the knowledge to each other. Participants answered various questions concerning their personal attitudes toward the use of alcohol and what they felt were their family's attitudes toward alcohol use. Participants were also tested on their factual knowledge about alcohol. Gender and age differences in attitudes and knowledge were analyzed. Relationships among all variables are discussed.

**Microbial Diversity in the Sediments of the Littoral Zone of Ledbetter Embayment of Kentucky Lake**  
**Yovita Sutanto, Chemistry and Biology**  
**Sponsor/Mentor: Dr. Tim Johnston**

This project is a study the microbial diversity of the littoral zone of Ledbetter embayment in Kentucky Lake. The littoral zone is an area of the lake, which is flooded in the summer, and dry in the winter due to the dropping of the reservoir level. The aim is to investigate the succession of microorganisms during the change from summer pool to winter pool and back. Soil samples were collected, DNA is extracted and 16S rDNA amplified by Polymerase Chain Reaction (PCR). The PCR products were then cloned. Each transformant colony from the cloning has the potential to contain a sequence from a different organism. The inserts in the clones were then reamplified, digested with restriction endonucleases, and the digestions run on acrylamide gels to fingerprint them. These data have been analyzed with statistics to measure the diversity of organisms in the sediment samples. This approach improves the limitation of the traditional culturing techniques for assessing the microbial diversity in natural environments which are biased for bacteria that can be cultured.

**Improvement of Quality of Life in Dialysis Patients**  
**Andrea Tanner, Nursing**

**Sponsor/Mentor: Ms. Sharon Myatt, Ms. Kathleen Farrell, and Dr. Barbara Kearney**

From the time of its invention during World War II to the present, the value of the dialysis machine has been debated. Some consider the machine a life saving device while others deem the technology as a "life saving crutch" that leaves those who use it with a poor quality of life. This study looks at the various definitions of quality of life (QOL) and how they apply to dialysis patients. The results of documented QOL assessments of dialysis patients and recommendations for improving QOL were examined. From this information, suggestions for implementation that should be executed by nurses and technicians at dialysis centers were synthesized. Suggested interventions included assessing the patient's perception of QOL, assessing the patient's needs, concerns, and stressors, helping the patient identify and use coping mechanisms, allowing the patient to set goals and make decisions about care, and including the patient's family when providing patient education. Then, dialysis center nurses and technicians in Western Kentucky were observed as they interacted with dialysis patients to determine what steps are currently being taken to assess and improve patients' QOL. Out of 29 categories of suggested interventions, nurses addressed 13 categories during the observation periods. Finally, each dialysis center visited was assessed for the presence and contents of any institutional procedures and policies that addressed QOL issues. The study examines the results of the observations and suggests implications for nursing practice, revealing that nurses can help dialysis patients live the best quality of life possible.

**What is Palliative Care**

**Andrea Tanner, Brianne Cox, Julie Stewart, and Jenny Wise, Nursing**  
**Sponsor/Mentor: Ms. Sharon McKenna**

This poster presentation will discuss four aspects of palliative care: physical, spiritual, psychological, and social. It will address the issue from an interdisciplinary standpoint. The presentation will focus on how the palliative care team can care for the entire person and family involved in the dying process to make the transition from life to death as easy and smooth as possible.

**Helping Behaviors in Abusive Situations**

**Takeisha Thompson, Psychology**  
**Sponsor/Mentor: Dr. Paula Waddill**

Abusive marriages are often overlooked by the police and others. Past research has shown that abusive marriages tend to make outsiders ignore the violence and see it as a private matter. This study investigated who people would be more likely to help in a violent situation: a married woman, dating woman, or a single women. The relationship status and location of the violence (at home, in a bar, or on the street) were considered.

**Child Labor: An International Dilemma**

**Wendy Renee' Threlkel, Economics**  
**Sponsor/Mentor: Dr. Jim McCoy**

Child labor is a worldwide problem that is embedded in cultural, social, and economic structures and traditions. It has been found to have a vast effect on children's physical and intellectual development. Today, there are roughly 250,000,000 children between the ages of five and 14 working throughout the world. Up to 120,000,000 of those children works full time. Child labor is not a stand-alone issue that can easily be combated. It involves many underlying issues that are intertwined with the social and economic environment. The International Labor Organization concludes that poverty, education, and local customs and traditions are just some of the contributing factors to child labor. The purpose of this thesis is to fully explore the history and major causes of child labor. Once the history and causes have been established, solutions to the international problem of child labor will then be explored and evaluated. These solutions come from a variety of perspectives such as international multilateral policies, United States federal government policies, local government strategies, and individual behavioral options. Finally, this thesis will conclude with an assessment of possible future trends for child labor.

## **Mapping of Change in Las Vegas Region Using Multi-temporal Remote Sensing**

**Gareth T. Turner, Geoscience**

**Sponsor/Mentor: Dr. Haluk Cetin**

Over the past twenty years the population of Las Vegas and its surroundings has increased dramatically. The reason that this is of concern is because of the fact that the city was built in defiance of the land's ability to support it. The main concern being the amount of water available as the population continues to increase in this area. The objective of this study was to determine how much Las Vegas grew, in terms of area, from 1991 to 1998 by using remote sensing techniques. A change detection study was performed using a 1991 Landsat Thematic Mapper (TM) image and a 1998 Landsat Enhanced Thematic Mapper (ETM) image of Las Vegas.

## **Paranormal Beliefs and Personality Traits**

**Amanda Wallace, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Belief in paranormal phenomena is a topic that has many researchers looking for answers. However, most research has only looked at the types of paranormal phenomena in which people believe. The goal of this study was to determine if certain personality traits are related to paranormal belief. The degree of belief in seven paranormal factors was assessed: psi, witchcraft, superstition, spiritualism, extraordinary life forms, precognition, and UFOs. The predictor variables in this study were traditional religious beliefs, academic major of study (science or nonscience), gender, and the personality traits of extraversion and imagination. The relationship of the predictor variables to belief in each type of paranormal phenomenon is discussed.

## **The Ecological Impacts of Stream Alteration and Homogenization on Aquatic Vertebrates**

**Jason Waller, Biology**

**Sponsor/Mentor: Dr. Howard Whiteman**

Undisturbed rivers and streams are mosaics of microhabitats created by such physical characteristics as elevation changes, substrate variation, and debris deposits. When humans channelize streams or rivers they homogenize them by removing the microhabitat variation that molded the local species diversity. The ecological impacts of homogenization are not well understood, but several negative consequences could result. Some species might not be well adapted to the new (altered) habitat, which could result in their extirpation. Homogenization could also increase niche overlap among competitor species, which might lead to extirpation of certain species. A case in point is Kentucky's relict darter (*Etheostoma chienense*) of the Bayou du Chien, a small stream in extreme western Kentucky. This species is endangered as the result of extensive canalization, although the exact mechanisms underlying their decline are unclear. In this literature review, I test the hypothesis that stream homogenization reduces species diversity by eliminating characteristics of the habitat vital to the fitness of certain animal species. The results of my literature review will be used to predict, based on similar life histories, the kinds of species that might be susceptible to channelization. For example, if fish populations were declining because of the removal of small, still, pools that they use for spawning, then amphibians using those same pools for depositing egg masses would be predicted to exhibit similar population distress. The findings of this study could aid in future land use decisions made by agencies concerned with the preservation of biodiversity.

## **The Relationship Between Puerto Rico and the United States**

**Jonathan Watkins, Spanish**

**Sponsor/Mentor: Dr. Jorge Medina and Dr. Leon Bodevin**

Puerto Rico has an interesting relationship with the United States. As of today, the island is not a state of the U.S.; however, it is a part of the U.S. Officially, Puerto Rico is considered a U.S. Commonwealth (Associated Free State). But what exactly does this mean? This relationship has definitely caused the entry of North American culture and language into Puerto Rico. This creates many thought-provoking questions, but the main one is what type of impact does this cultural exchange have? This research is divided into three parts. The first part analyzes the history of the relationship between the United States and Puerto Rico. And, the other two parts examine the impact of this relationship on Puerto Rico and the future implications of this cultural exchange.

## **Conflict in the Latino/Anglo-American Workplace**

**Katherine Weber, Spanish**

**Sponsor/Mentor: Dr. Michael Waag**

My project deals with the conflict in the multicultural workplace of latinos and angloamericans. I cover what a latino is, demographically, culturally and their place in the U.S. society. I go on to research consciously based conflict and unconscious culture-based conflict: time, spacing, language, etc.

### **First Name Stereotypes**

**Amanda Weitlauf, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Past research has indicated that individuals may be evaluated by others according to their first name. This study examines the effects of attractive and unattractive first names on the evaluation of males' and females' physical, social, personal, and intellectual attributes. This research is designed to discover more about how first names are used as social stereotypes and if these stereotypes are applied differently to men and women.

### **Differences in Attitudes Toward Romantic Infidelity**

**Christina Wendel, Psychology**

**Sponsor/Mentor: Dr. Paula Waddill**

Previous research shows a strong gender difference in attitudes toward infidelity and in what types of infidelity are perceived as more distressing. That research, however, generally asked participants to compare two extremely different types of situations. This research study was designed to include other factors that may relate to the gender difference in attitudes toward infidelity. Unlike past research, this study measured attitudes toward a broad range of types of infidelity. It also assessed if being involved in an exclusive dating relationship affects attitudes toward infidelity as well as what types of behaviors are perceived as infidelity, how distressing those behaviors are, and if those behaviors are believed to justify ending a relationship. The roles that individual self-esteem and locus of control play in attitudes toward infidelity were also investigated.

### **Project Demonstrating Excellence: Nursing Web Page Development**

**Denise Williams, Lisa Brown, Danny Pellegrino, and Deborah Sims, Nursing**

**Sponsor/Mentor: Ms. Sharon McKenna**

The 20th century is termed as the age of the information revolution. The information revolution affects every aspect of our lives. The health industry is one aspect in which the information revolution has impacted dramatically. The nursing profession as a whole is undergoing rapid changes, and nursing informatics is the driving force in the change process. To become active in the information revolution as students in the Nursing 404 class we were assigned The Project Demonstrating Excellence (PDE). The PDE provides the opportunity to integrate theory with practice. The focus of this PDE was to update the Nursing Department web pages to be more attractive to potential nursing students and more useful to current students and faculty. The poster presented is a compilation of the process of gathering information to complete this project. The goals and objectives of the project, literature review, population and risk factors, and recommendations and summary will be included on the poster.

### **A Brief Overview of CHAMPs: A Proactive and A Positive Approach to Classroom Management**

**Lauren Wolff, Special Education**

**Sponsor/Mentor: Dr. Dana Harader**

In order to meet the demand for teachers who are capable of fulfilling the requirements for New Teacher Standard 2 (Learning Climates), Murray State University's Dr. Dana Harader has created a class that uses CHAMPs: A Proactive and Positive Approach to Classroom Management (Randall Sprick, Micky Garrison, and Lisa Howard). Due to lack of classroom management training, many classroom teachers are having problems dealing with inappropriate behavior. CHAMPs is being implemented across the state in school systems to address this problem. This session is designed for educators, parents and administrators desiring to learn more about the CHAMPs method. This informative short speech about the CHAMPs classroom management system will provide participants with a set of proactive positive management skills for immediate implementation in the classroom environment.

### **Perceived Barriers to Adherence as Described by Individuals with HIV: A Descriptive, Exploratory Study**

**M. Susan Wurth, Nursing**

**Sponsor/Mentor: Dr. Michael Perlow**

The purpose of this study was to determine what the HIV positive individual knows about the disease and how the HIV positive individual responds to having the disease. The study's purpose also was to identify perceived barriers to adherence to one's medical regimen and treatment as described by HIV positive individuals. The theoretical basis of the study was guided from the integration of concepts from Nola Pender's Health Promotion Model. Patient adherence to combination therapy, an act of health promotion, is a critical component of successful treatment outcomes. The descriptive, exploratory design was conducted in an HIV clinic in the rural South. A convenience sample of HIV positive individuals, age 21 and over, participated on a volunteer basis only. Data were retrieved by a structured, face-to-face interview with each respondent. Descriptive statistics were used to calculate and present the findings. Results of what the HIV positive individual knows about the disease indicated a deficit of knowledge pertaining to one's CD4 cell count and viral load level, the two most descriptive blood tests that evaluate the control or progression of HIV infection. Results related to how the HIV positive individual responds to having the disease identified stressors in one's life that can pose as obstacles or barriers to adherence to one's medical regimen and treatment. Results also suggest that perceived barriers to adherence are physiological, social, and psychological. Implications and recommendations of this study include that good patient-provider communication, patient education, and individualization of care can assist patients in achieving optimal benefit from their treatment.

## **Extra! Extra!: The Media As a Tool of Internationalization**

**Krista Sue Zurkamer, Print Journalism**

**Sponsor/Mentor: Dr. Michael Basile**

The purpose of my project is to explore the role of the media in the advancement of international studies and programming available at universities focusing in on our campus at Murray State University. I want to discuss the various ways campuses utilize their media in internationalizing the campus and students. The purpose of the project is to create interest and encourage international participation among the students at Murray by using the media as a tool for acknowledging the programs offered and creating some new ones. The prime area of focus will be concentrated towards newspaper, radio, and television. Topics of discussion would not be limited to only the students but also the faculty. The objective is to internationalize the campus as a whole and by utilizing the media outlets on campus we would create interest and publicity. To successfully internationalize the campus and its students at Murray, the international programs and students must be properly promoted to spark the interest of everyone.