STUDENT RESEARCH AND CREATIVITY CELEBRATION

APRIL 2-6, 2012

NKU
NORTHERN KENTUCKY UNIVERSITY

Spotlighting the best of student work...

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LETTER FROM THE PRESIDENT

To Our Celebration 2012 Participants and Guests:

Undergraduate research is a hallmark of Northern Kentucky University and the Celebration of Student Research and Creativity personifies this important mission. Few universities are able to provide the depth and breadth of undergraduate research that we offer our students.

NKU's annual Celebration of Student Research and Creativity highlights excellence, achievement, collaboration, learning, and scholarly and creative contributions of our students and faculty. Students have the opportunity to collaborate closely with faculty members, producing research that often leads to publications and presentations at state, national and international professional meetings.

Further, this weeklong event not only celebrates the inherent educational value in creating these complex projects, it also recognizes the other benefits that come with participation: gaining a truly hands-on experience; applying classroom knowledge to real-world situations; and developing a higher-level thinking and ability to present deep topics, skills that will be of benefit in the working world or graduate school.

Celebration of Student Research and Creativity is another example of NKU's strong commitment to an up-close and personal education grounded in excellence. Student research offers academic challenge and collaboration with faculty and partners from the public and non-profit sectors, the P-12 community and industry.

I know that a great deal of thought and effort is required to prepare for and present at the Celebration. It is always a pleasure to hear presentations and performances, view the posters and talk with our students about their work. I am always impressed with their depth of knowledge, talent, organizational and presentation skills, and their poise in addressing questions.

I want to thank all of our faculty members who have sponsored students over the years and for 2012 Celebration of Student Research and Creativity. You have taken the role of mentor to greater heights.

To all participants, past and present, all of us at NKU congratulate you for your scholarly achievements in research and creativity.

Sincerely,

James C. Votruba
President

LETTER FROM THE PROVOST

Dear Celebration 2012 Participants:

Welcome to NKU's 2012 Celebration of Student Research and Creativity. Congratulations to all who are participating in this celebration as we continue the tradition of honoring the outstanding scholarly and creative work being performed by NKUs' extremely talented graduate and undergraduate students under the sponsorship of supportive and dedicated faculty. I enthusiastically join President Votruba, the deans of our colleges, and the chairs of our academic departments in complimenting you on your accomplishments and thanking you for preparing the wonderful presentations for this special event.

High level student research has become a defining characteristic of NKU. The projects being presented this year clearly reflect the excellent scholarly and creative work NKU students can accomplish when given an opportunity and the support of dedicated faculty who mentor them. The projects are fascinating in their varied concepts, context and execution, and demonstrate academic rigor. I am confident that this work has resulted in deep learning for our students. The knowledge and enthusiasm generated by such intense involvement are often transformative learning experiences for our students – an experience never to be forgotten. The projects and presentations will stand as benchmarks to inspire and challenge future student projects.

Many projects will be presented and celebrated in other venues. In previous years, some of the projects initially presented at NKU's Celebration of Student Research and Creativity led to scholarly publications that were co-authored by students and faculty and/or to presentations at local, state, national, or even international conferences. I fully expect similar outcomes this year.

NKU is gaining national recognition for the opportunities it offers both undergraduate and graduate students to participate in meaningful research and to work closely on joint projects with acclaimed faculty members. NKU is committed to providing students with an educational experience predicated on dynamic, active learning, academic challenge and close student-faculty interaction. NKU's tradition of faculty excellence in research, placed in the context of our universal commitment to learner-centered values, offers our students academic and professional opportunities that are positively viewed by employers as well as graduate schools.

In closing, I again want to congratulate the students whose work is being showcased at this annual celebration and thank the faculty who supported them. We appreciate your efforts and talents, and are very proud and pleased to join you in celebrating your outstanding accomplishments.

Sincerely,

Gail W. Wells

Gail W. Wells
Vice President for Academic Affairs and Provost

SCHEDULE OF EVENTS

Tuesday, April 3, 2012, 1:00 - 3:30 pm

POSTER PRESENTATIONS, INTERACTIVE PRESENTATIONS, AND ARTISTIC PRESENTATIONS
Student Union Ballroom

Tuesday, April 3, 2012

MUSICAL PRESENTATIONS
StudentUnion Ballroom at Poster Session

1:00-1:10	Saxophone Quartet
1:10-1:20	Saxophone Duo
1:20-1:30	Early Music Ensemble
1:30-1:40	Early Music Ensemble
1:40-1:50	Guitar Ensemble
1:50-2:00	Guitar Ensemble
2:00-2:15	President and Provost's Welcome
2:20-2:30	String Quartet
2:30-2:40	String Quartet
2:40-2:50	String Quartet

Tuesday, April 3, 2012

DANCE, MUSIC, AND THEATRE EVENTS
Tent, Plaza area in front of Founder's Hall

11:20-11:40	Tuba Euphonium Ensemble
11:50-12:20	Musical Theatre Tour Group
12:30-1:05	Dance Troupe
1:40-2:00	Broadway Chorus
2:10-2:30	Jazz Combo 1
2:35-2:55	Jazz Combo 2
3:00-3:30	R&B Combo

Wednesday, April 4, 2012

MUSIC AND THEATRE EVENTS
Tent, Plaza in Front of Founders' Hall

10:00-10:20	Percussion Ensemble
10:30-10:50	Brass Choir
11:00-11:20	Jazz Combo 3
11:30-11:50	Latin/Salsa Ensemble
12:00-12:30	Steel Drum Band
12:40-1:10	Chamber Choir
1:20-1:50	Woman's Ensemble
2:00-2:20	Vocal Jazz
2:30-2:50	Chamber Orchestra
3:00-3:20	Musical Theatre Tour Group
3:30-4:00	Jazz Ensemble

Wednesday, April 4th

ORAL PRESENTATIONS

English Department Presentations:
12:00 - 4:00 pm, *Steely Library 102*

Political Science and
Criminal Justice Presentations
2:00 pm, *Founders' Hall 447*

Thursday, April 5th

Computer Science Presentation
10:30 am, *Griffin Hall 470*

Mathematics & Statistics Presentation
1:40 pm, *MEP 467*

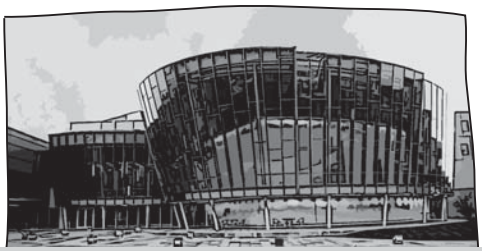
Chemistry, Biological Sciences and
Geology Presentations
12:00 - 5:00 pm, *Science Center 304*

Friday, April 6th

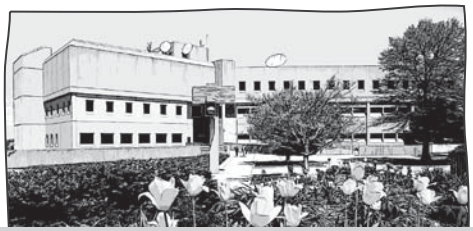
History & Geography Presentations
2:00 - 3:30pm, *LA 427*

Friday, April 6th

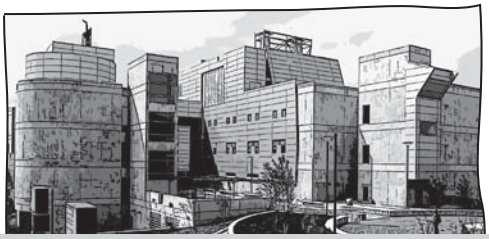
ARTISTIC EVENT
Senior Art Exhibit
9:00 am - 9:00 pm, *Fine Arts - Main Gallery*



Griffin Hall



Landrum Academic Center



Dorothy Westerman Herrmann Natural Science Center

Haile/US Bank College of Business *(formerly AS&T)*

Albright Health Center

Fine Arts Center

"CELEBRATE NKU: ALL AROUND CAMPUS" EVENTS

Griffin Hall
Tuesday, April 3rd, 7:30 pm
Digitorium
Libby Larsen at NKU: featuring NKU students and faculty; Grant Knox, coordinator, Libby Larsen, Rosemary Ritter
FREE

Landrum Academic Center
Wednesday, April 4th, 11:00 am - 1:00 pm
NKU Museum of Anthropology, LAC 200
OPEN HOUSE

Dorothy Westerman Herrmann Natural Science Center
Wednesday, April 4th
NKU Planetarium, NSC 406
2:00 pm *Earth, Moon, and Fire*
3:00 pm *Kentucky Cascade Cave*

Haile/US Bank College of Business *(formerly AS&T)*
Thursday, April 5th, 10:00 am - 12:00 noon
Automated Manufacturing Lab and Engineering Technology, BC 121
OPEN HOUSE and DEMONSTRATION

Albright Health Center
Thursday April 5th, 12:30 pm - 2:30 pm
Simulation Lab, AHC 314
OPEN HOUSE and DEMONSTRATION
Department of Nursing, College of Health Professions

Dorothy Westerman Herrmann Natural Science Center
Thursday, April 5th
NKU Planetarium, NSC 406
2:00 pm *Kentucky Cascade Cave*
3:00 pm *Earth, Moon, and Fire*

Fine Arts Center
Friday, April 5th, 10:00 am - 12:00 noon
NKU Art Galleries
Senior Art Exhibition

ARTISTIC PRESENTATIONS

Multiple locations

A-1: NICCI MECHLER
Susie's Girl - Young American Flirt
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
STUDENT UNION, APRIL 3RD, 1-3:30PM
Abstract: Though classically described as a sort of hermit, Emily Dickinson's engagement with the world is evident in her hundreds of pages of correspondence and poetry. She lowered cookies from her window for neighborhood children, wrote poems touching on everything from baking to sex, entertained great passion in her letters, and lived across the hedge from the object of her affection for thirty years. Though her most oft used photograph is a black and white representation of a ghostly girl, this mixed media portrait re-imagines Emily as the vibrant woman she once was, and is still—through her ink stained pages.

A-2: CAITLIN SPARKS
American Artist: Gilbert Wilson and the Cosmic White Whale
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
STUDENT UNION, APRIL 3RD, 1-3:30PM
Abstract: My research uncovers the story of American artist Gilbert Brown Wilson. His story is one of struggle, opposition, and perseverance, but above all Gilbert Wilson's story is inspiring. I traveled to Gilbert's home town of Terra Haute, Indiana to see his artworks first-hand. On this research trip I discovered a deeper understanding of what life was like for Gilbert. I'm learning from Gilbert's story and my own experiences in art school that the life of a creative and persevering artist may not come to fruition in their life time but their message if valued, could live long after.

A-3: BRIAN DAUNT
The Common Wasteland
FACULTY SPONSOR(S): MATTHEW ALBRITTON, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 5-13, 2012
Abstract: The work I'm showing in the exhibition Retrograde explores the forgotten and forsaken areas of Greater Cincinnati. Too often I see areas that once held importance within their community left to rot while new venues continue to open. I see this same trend happening in photography, as digital cameras begin to replace film. In celebration of the disregarded, the images in Retrograde began as digital photographs, and through the use of digitally created negatives, have been hand-printed within the darkroom from the practice of old, alternative processes.

A-4: BRIANA ARNOLD, KATIE DOYLE, COREY PENCE, BETHANY SANDBERG
Art for All Project Design for the Taft Museum of Art
FACULTY SPONSOR(S): TOBIAS BRAUER, VISUAL ARTS
STUDENT UNION, APRIL 3RD, 1-3:30PM
Abstract: The Taft Museum of Art is a house museum located in downtown Cincinnati. To celebrate the museum's 80th anniversary, the Taft is hosting a summer event, ART FOR ALL. Eighty reproductions of artworks from the museum's collection will be placed around the Cincinnati-Northern Kentucky metropolitan area. As a gift to the public, this event will increase awareness of the Taft and strengthen ties with the city. Our team's goal is to promote ART FOR ALL through print, web, and motion design by creating the event logo, labels for the reproductions, city and community maps, web page, and promotional video.

A-5: DANIEL CALDERON, ZACH EVANS, JEREMY JETT, JAKE STAUBITZ
Casablanca Vintage
FACULTY SPONSOR(S): TOBIAS BRAUER, VISUAL ARTS
STUDENT UNION, APRIL 3RD, 1-3:30PM
Abstract: Casablanca Vintage is a classic clothing store in Northside, Cincinnati. Our goal with this project is to develop a brand identity that brings both professionalism and notoriety to this local business establishment. The component objectives of this endeavor consist of creating a logo system, website, print publication series, interior/exterior signage, and a vintage apparel design. We hope this creativity-enriched project will help enhance the vibrant culture of Northside, ultimately strengthening while bringing new attention to this local business.

A-6: ANDREW STEWART, GINA GRITTNER, RYAN NELTNER, ZACH JANSZEN
Paddle the Ohio Identity Design
FACULTY SPONSOR(S): TOBIAS BRAUER, VISUAL ARTS
STUDENT UNION, APRIL 3RD, 1-3:30PM
Abstract: In the 2012 Spring semester, four Advanced Visual Communication Design students worked pro bono for the annual Cincinnati Paddlefest. More specifically, we helped create an identity system for Paddlefest's flagship event: Paddle the Ohio. Along with creating a logo, posters were designed and the way-finding system for the event was updated.

A-7: PETE HALL
Dominance
FACULTY SPONSOR(S): STEVEN FINKE, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 19-27, 2012
Abstract: My work attempts to push the boundaries of the human ideal of dominance. In many situations man lacks the foresight and humility to understand that we are but one small piece of a much larger biological system. This piece uses microbial life as the subject and pushes it to a grand scale in order to dominate the viewer and get the viewer to at least consider the life cycle and strength in even the smallest thread of life. The more we assume responsibility for the lives of all in our system, the more we become of importance to the system.

A-8: LINDSAY CLAYTON
The Myth
FACULTY SPONSOR(S): BARBARA HOUGHTON, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-THIRD FLOOR GALLERY, APRIL 19-27, 2012
Abstract: The Myth is a narrative series of 3D photographs that deal with choice and change. As you enter the dark gallery space, lights will guide you through the show. Everyone goes through a time in their life when they are forced to figure out what kind of a person they want to be. What might be expected of you could be different than what you actually want to be. In the end, the choice is only yours to make... How will you change?

A-9: JESSE FOX
Three Letter Word
FACULTY SPONSOR(S): BARBARA HOUGHTON, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 19-27, 2012
Abstract: The subject of Jesse Fox's senior exhibition "three letter word" explores the multifaceted nature of human sexuality and gender. Though "sex" is such a short word, it is powerful enough to divide our country on political issues, sell products, define who we are, the hobbies we should have and the clothes we should wear. This series is based upon varying influences on our society's perception of human sexuality and gender from religion, advertisements, politics, pornography and individual upbringing. The work presented will be both photographs and videos.

A-10: SARA KIRSCHNER
It's About the Music
FACULTY SPONSOR(S): BARBARA HOUGHTON, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER MAIN GALLERY, APRIL 5-13, 2012
Abstract: Music is one of those things that most can appreciate but only few can create. My interests lie in those few who have the passion to create that music. Passion is something that cannot help to show itself, it is in the eyes, the facial expressions, the voice, and even the touch of those who posses it. My current body of work focuses on local musicians here in the Cincinnati area that have a serious passion for music. My goal is to take that passion and put it into photographs.

A-11: KAYLEE BUSTILLOS
FACULTY SPONSOR(S): ANDREA KNARR, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 5-13, 2012
Abstract: In this installation the walls and floor are covered with sheets of paper. On them are printed words and images that represent feelings of being alone and not being worthy of being looked at, as an artist or even as a person. Buried within the sheets of paper on the walls are small clear frames containing things that she has been hiding; parts of herself that she has been trying to keep hidden for many years and now she is beginning to show them. This is an installation that should be interacted with, viewers are welcome to walk on the paper on the floor and dig out the hidden pieces buried in the walls.

A-12: MICHAEL RENDELL HENSLEY
The Quiet Essence of Unification
FACULTY SPONSOR(S): MARC LEONE, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 5-13, 2012
Abstract: The Quiet Essence of Unification is a show about taking two separate life styles and incorporating them into one. It allows a glimpse into what makes a relationship as raw and natural as possible. What you see is what you get, and through this statement the work radiates honesty.

A-13: AUDREY WEATHERBY
Dancing the Bear
FACULTY SPONSOR(S): MARC LEONE, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 5-13, 2012
Abstract: My BFA collection, entitled "Dancing the Bear" is basically an exploration of emotion, however raw or subtle. My show challenges ideas of power and individuality; and with this show, I have opened the doors to the uncharted territory that seriously explores the relationship between fabric and paint and fashion. I use fashion as my canvas, painting on a garment that someone could easily wear; and the way in which I use fabric and paint work well together to visually convey an emotion, or even an idea that I may have. I fabricate skirts from the beginning, and by the time that they are done, they hang quietly in a space, suspended from the ceiling, usually in a mysterious mood.

A-14: JESSE BYERLY
FACULTY SPONSOR(S): BRAD MCCOMBS, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 19-27, 2012
Abstract: A two part installation will feature one room with video work I have created therapeutically in response to thoughts, people and events in my own life, while the other will allow viewers to respond to their own lives. I want people to feel and express power within their own lives by giving them the ability to write, draw, or collage their own artwork to be projected among vivid colors and sounds within the space. The hope of this installation is to birth lucidly empowering experiences in which individuals can explore and confront their own issues, celebrate victories, share advice, tell a story or simply express a feeling.

A-15: ERIN HOFFMAN
Beasts of Burden
FACULTY SPONSOR(S): KEVIN MUENTE, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 5-13, 2012
Abstract: All fantasy should have a solid base in reality. To have one foot in the dream and one out is to be assured you won't fall in. Starting as a series of paintings inspired by my dreams; my BFA show titled Beasts of Burden is about the life stages, turning points, or problems that one may face in their life time. Fantasy, dreams, fictional stories, and brilliant color all fuel my creative passions. The paintings are oil and acrylic on wood and are large in scale to allow the viewer to step one foot into my fantasy.

A-16: DANIELLE WALLACE
FACULTY SPONSOR(S): KEVIN MUENTE, DAVID KNIGHT
SENIOR EXHIBITION, FINE ARTS CENTER-MAIN GALLERY, APRIL 19-27, 2012
Abstract: I will be showcasing a series of life-sized horse paintings. Each painting represents and is reflective of my own interactions, experiences and relationships with horses. It is my hope that when viewing my paintings people are able to see and appreciate the power, strength and beauty that I see in these amazing animals.

INTERACTIVE ABSTRACTS

Abstracts are listed by department of the first faculty sponsor.

I-1: THOMAS DELANEY, JASON GENTRY
The NKU and Transit Authority of Northern Kentucky Kiosk
FACULTY SPONSOR(S): DAVID HIRSCH, CENTER FOR APPLIED INFORMATICS
Abstract: The TANK Kiosk was the outcome of a collaborative project with the Transit Authority of Northern Kentucky (TANK) aimed to reduce the number of paper schedules and increase ridership on the public bus system in Northern Kentucky. The kiosk utilizes touch screen technology, AJAX, QR encoding, and the Google Transit API to help users map routes based upon the existing bus schedules provided by TANK and Metro. The ability to find these routes utilizes the Google Transit API. The kiosk also features the ability to view the most current TANK schedules, and a corresponding map.

I-2: NICK SULLIVAN, MAKAYLA SCHULTZ, GABY RODRIGUEZ
The Interactive Board
FACULTY SPONSOR(S): DAVID HIRSCH, CENTER FOR APPLIED INFORMATICS
Abstract: The Interactive Board is an immersive multimedia tribute to the supporters of Griffin Hall, providing diverse perspectives on Griffin Hall's impact to the region. Donors such as Bob Griffin, legislators such as Kentucky Governor Steve Beshear, NKU leaders such as President James Votruba, and NKU students are featured. A time-lapse of the building's construction guides visitors through the innovations built into NKU's first LEED-certified facility. The project was developed using the Adobe Creative Suite as well as utilizing a 52" touch screen for true interactivity and is now displayed in Griffin Hall's Eva G. and Oakley Farris Commons.

I-3: DENNIS OSBORNE, GARY OETJEN, JAIME STONE, LOREN KOEHLER, MELISSA VILLIARD, ALEXANDRIA RUNTZ, ASHLEY PRATT
Pre400!pr and Cuisine D'Lemongello: Creating Identity, Value and Profit
FACULTY SPONSOR(S): GREG DEBLASIO, COMMUNICATION
Abstract: The "Pre400!pr: Cuisine D'Lemongello" project identifies the actions necessary for a public relations firm to take a product, Lemongello Vinegar, and introduce it into a test market with the purpose of creating profitability for the firm and value for the client. This interpretation of the project meets these objectives by creating the brand identity of Lemongello Vinegar, utilizing public relations strategies and marketing techniques in order to create a timeline and introduction framework for other markets, and creating a summary budget which communicates value to the client and creates profitability for the firm.

I-4: KELSEY GROUP PROJECT, GAFFNEY, RACHEL LIGHTFOOT, TAMARA SIMENDINGER, EMILY GROH
APCA Implementation Plan Project
FACULTY SPONSOR(S): FREDERICK BROCKMEIER, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: The Affordable Patient Care Act (Health Reform Act) is designed to reduce the increase in cost of providing health care to all citizens of the United States. It started in 2011 and will be implemented over four years. Our team functioned as a task force to assist the members of an organization handle changes that affect its people.

I-5: BRIDGET BRATTON
Issues in International Adoption
FACULTY SPONSOR(S): KIMBERLY WEIR, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: International adoption has caused some debate recently concerning issues of corrupt adoption law and the value of international adoption over domestic adoption. My presentation discusses those issues, as well as issues in the study of international relations such as the effects of globalization, the exploitation of the Global South, and the impact of substandard orphanages on children to be adopted from overseas.

I-6: JENNIFER HOLT
Assessing the Russian 'Mafiya' Threat
FACULTY SPONSOR(S): KIMBERLY WEIR, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: The Russian mafia poses a significant threat to international security, particularly since the fall of the Soviet Union. Criminals, corrupt politicians, and wealthy business leaders known as oligarch's worked together and exploited Russia's transition to a free market economy. These relationships allowed the mafia to penetrate into all sectors of the Russian economy, government, and society. Since that time, Russian organized criminal groups found new avenues for their activities, including nuclear arms smuggling. Since the Russian government hasn't been effective in combating corruption, the mafia has acquired significant power both domestically and abroad.

I-7: ALICIA RACE
United States Involvement in Nicaragua
FACULTY SPONSOR(S): KIMBERLY WEIR, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: As exploration and political interests led citizens of the United States to the Republic of Nicaragua in the mid-1800s, these states have shared a complicated history of civil war and third-party intervention. In order to understand this history, it is important to evaluate the motivation leading the U.S. to increase their role in Nicaragua under President Reagan. The motivations examined involve third-party intervention, democratization, security threats, foreign policy, and economic motives. As the United States was influential to the internal conflict of Nicaragua, it is important to evaluate their motives and the results of the intervention.

ORAL PRESENTATIONS

Abstracts are listed by department of the first faculty sponsor.

O-1: TRACEY DAUGHERTY

Helping teachers integrate demonstrations in the classroom

FACULTY SPONSOR(S): P.J. BALL, CHEMISTRY; BRADLEY SIEVE, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Chemistry demonstrations can be a powerful teaching tool to use in any science classroom at any grade level. Tying these demonstrations to the classroom curriculum is always a challenge even with a wealth of information available online. This talk highlights our work correlating Ohio and Kentucky curricula to the NKU Chemistry Demo Database for ease of teacher use. The database itself can provide a wealth of information, but without a convenient tool that describes when and how to use an activity, each teacher must use his or her best judgment on how the demonstrations tie into the classroom curriculum.

O-2: ADAM GOTTULA, JOSEPH SQUERI, MATTHEW STARK, ROBERT SPAULDING

Characterization of Pluronic coated polybutylcyanoacrylate (PBCA) nanoparticle interactions with *in vitro* models of the blood-brain barrier

FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY;
KRISTI HAIK, BIOLOGICAL SCIENCES

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Polybutylcyanoacrylate (PBCA) nanoparticles are appealing choices for drug delivery to treat central nervous system diseases. However, a detailed characterization of PBCA nanoparticle (NP) uptake and toxicity is important before implementation. The biophysical interactions of Pluronic coated PBCA NPs with model lipid membranes were evaluated using Langmuir Blodgett monolayer techniques and atomic force microscopy (AFM). Results were correlated with cellular toxicity measurements using endothelial cell culture models of the blood-brain barrier.

O-3: JOSEPH SQUERI, MATTHEW STARK, ADAM GOTTULA

Implication of surfactants in evaluating polybutylcyanoacrylate (PBCA) nanoparticle toxicity

FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY;
KRISTI HAIK, BIOLOGICAL SCIENCES

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Polybutylcyanoacrylate (PBCA) nanoparticles are a promising vehicle for drug delivery to the brain due to their ability to pass through the blood-brain barrier (BBB). However to date, an understanding of their toxicity is not known. We present an approach to evaluate the biophysical interaction of PBCA nanoparticles (NPs) with model lipids of the blood-brain barrier using Langmuir Blodgett techniques and atomic force microscopy (AFM). Results provide important insights into NP miscibility and toxicity. The influence of surfactants on NP toxicity will be discussed.

O-4: LEANNA FOSS

Syntheses of polystyrene-organoclay nanocomposites using thiol-functionalized organoclays

FACULTY SPONSOR(S): ISABELLE LAGADIC, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Organoclay-polymer nanocomposites are a class of hybrid materials that are composed of an organic polymer matrix that have inorganic clay nanofillers dispersed within. The incorporation of inorganic fillers into polymeric matrices is a process that has been used for years to improve polymer properties. However, in order to produce a material with desirable properties, complete dispersion of the inorganic clay layers within the polymer matrix is necessary. In this project, we investigated the syntheses of polystyrene-organoclay nanocomposites using an organoclay containing a thiol (SH) group (Mg-MTMS) combined with polystyrene (PS). Nanocomposites were prepared using two processes: 1) A solution process where various amounts (1, 5, 10, 25 wt%) of thiol-functionalized organoclay is dispersed into a polymer solution. 2) A surface-initiated polymerization method where the polymerization of the polystyrene takes place after reaction of the styrene monomers with the thiol groups of the organoclay layers acting as anchoring sites for the polymer chains. The effectiveness of the two methods will be discussed.

O-5: STEVI JOHNSON

Folate functionalization of surfactant-templated mesoporous silicates used as anticancer drug delivery systems

FACULTY SPONSOR(S): ISABELLE LAGADIC, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Current methods of cancer treatment, while resulting in tumor cell death, also harm healthy cells causing many negative side effects for patients. Mesoporous silica nanoparticles can be used as drug delivery systems to limit chemotherapeutic drug interactions with healthy cells. Recent research has shown that the cetyltrimethylammonium bromide (CTAB) surfactant exhibited specific cytotoxic effects toward cancerous cells without affecting normal cells. This CTAB surfactant is also commonly used as a template for the pore formation of mesoporous silicates. Our research work was to specifically functionalize the exterior pore surface of CTAB–containing mesoporous silicate (MCM) nanoparticles with organic groups capable of targeting cancer cells, such as folate groups. The conjugation of folic acid (FA) groups and fluorescein isothiocyanate (FITC), a dye used to follow nanoparticle cell uptake, to this silicate shell was carried out using two methods. The first method conjugated folic acid or FITC to aminopropyltriethoxysilane (APTES) as a silane precursor before being used to functionalize the nanoparticle. In the second method APTES was first added to the forming shell to functionalize it with amine (NH2) groups, followed by the coupling of the folate or FITC to these amines. The presence of functional groups as well as CTAB in our materials was confirmed by infrared spectroscopy.

O-6: WILLIAM TALBERT

A new approach to the synthesis of O-Dehydrobenzoannulenes

FACULTY SPONSOR(S): KC RUSSELL, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: O-Dehydrobenzoannulenes (DBAs) are a class of cyclic compounds where arenes are connected at the ortho-position by one or more triple bonds. Interest in DBAs has recently become more popular as such compounds have been shown to act as potential sensors. The Russell Research Group (RRG) has previously reported the synthesis and characterization of a series of symmetric annulenes, and is now interested in examining the asymmetric isomers. It was found that using a 120°C final coupling of the asymmetric isomers resulted in extremely poor or no yield. This problem has been addressed in the form of a new synthetic route.

O-7: ROBERT WEHRLE

Synthesis of electron-rich annulenes

FACULTY SPONSOR(S): KC RUSSELL, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Annulenes are unique compounds that have been shown to exhibit many spectroscopic properties that are believed to be useful in future implementation of sensor technology. This is made possible due to the vast amounts of conjugation that are present throughout the entirety of their structure. A target annulene will be constructed from two base components, 1-bromo-3,4-diiodobenzene and 1,2-diiodo-4,5-dimethoxybenzene, to form a [14]-annulene. Current research is being focused on synthesizing the target annulene. After the synthesis of the target molecule, spectroscopic research will be carried out to test the effects of dicoupling this molecule to different electron withdrawing and donating groups.

O-8: DEREK GIBBS

Synthesis of monomeric and polymeric systems uniting transition metal chromophores and extended aromatic organics (fullerene, corannulene, or coronene)

FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY

THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM

Abstract: Our work focuses on organometallic systems that attach small molecules together to obtain efficient electron transfer following light excitation. These systems could be used in solar cells and similar devices. This presentation will focus on efforts to attach transition metals to delocalized organic molecules. The metal absorbs visible light, while the organic provides electron shuttling and absorbs ultraviolet light. These components are linked via a backbone to permit electron transfer. Our group has prepared small molecule systems, with our goal to create polymers (e.g., plastics) of value to everyday applications. We have begun our initial polymer syntheses, obtaining promising results.

O-9: AUSTIN BRASHEAR

Building a Private Cloud with Eucalyptus

FACULTY SPONSOR(S): WEI HAO, COMPUTER SCIENCE

TBD

Abstract: Public cloud is an emerging computing platform that is increasingly popular. However, the big concern about the public cloud is security. People do not want to store

confidential data or run proprietary applications in the public cloud. Therefore, we build a private cloud to address the security concern of the public cloud. Our project's goal is to create a private cloud infrastructure with API-level compatibility with Amazon's EC2 using free software which might be used in a classroom environment for creating and destroying virtual machines as needed by the students. Our cloud infrastructure is based upon Ubuntu Linux and Eucalyptus.

O-10: VICKIE KNUEVEN
The Tongue is Mightier than the Sword: The Power of Language in Shakespeare's The Taming of the Shrew
FACULTY SPONSOR(S): EMILY DETMER-GOEBEL, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: Shakespeare's The Taming of the Shrew illustrates how characters' use of language establishes their place within the culture. In his male-dominated society, the character of Petruchio appears to use his quick wits to tame the shrewish Katherine into submission. However, in this presentation, I argue that although Petruchio has a way with words, it is Katherine who, through her own clever use of double entendres, puns, and double meanings, actually does the taming.

O-11: MORGAN SCHAEFER, JIMMY WILKINSON
Why Did the Chicken Cross the Road?: How to Fowl Up a Final Exam.
FACULTY SPONSOR(S): ANDREA GAZZANIGA, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: Two creative pieces written in response to a final exam question that asked students to answer the question "Why did the chicken cross the road?" in the style of a Victorian author. The first piece, written in the voice of Oscar Wilde, presents an understanding of Victorian age themes such as aestheticism, the multiplicity of words and an irreverence of order. The second piece captures George Eliot's reflective, musing voice from The Mill on the Floss. It captures the life and spirit of a provincial setting and recreates the intense anguish felt by Maggie Tulliver in the face of family crisis.

O-12: KRISTIN KOESTER
Poetry reading
FACULTY SPONSOR(S): KELLY MOFFETT, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: I will read excerpts from my series of poetry inspired by everyday life, observations and feelings. In between poems, I will comment on my writing process, answering questions such as: What inspires me to write? Who inspires me to write and why? What current poets' work do I admire and why? What is my writing routine like? How do I manage to work writing into my busy life as a student with a full-time occupation and family? All poems were written while taking poetry workshops at Northern Kentucky University.

O-13: JENNIFER WHALEN
Please Respond, My Sculptor of Grace
FACULTY SPONSOR(S): KELLY MOFFETT, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: Please Respond, My Sculptor of Grace is a collection of poetry compiled throughout various creative writing courses while attending NKU. The portfolio contains poems of various forms, including free verse and prose poetry. It also includes work of assorted aesthetics ranging from narrative to lyric. The major poetic influences for this selection were Louise Glück and Frank O Hara. The collection invokes the mundane aspects of everyday living, the narratives we carry day-to-day, to answer the big questions about life, language, and the irrevocable link between the two. Underlying themes also include gender, isolation, and the loss of innocence.

O-14: CAROLA BELL
Only Safe in Ashes
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: Only Safe in Ashes is a creative response to the poems of Emily Dickinson. It is a handmade book of original poems hand-stamped on the pages. It was inspired by Dickinson's life and art— her poetry, a clandestine lover, the Master letters, and the mysteries that remain about her. Dickinson's secret relationship was unquestionably dysfunctional and hopeless. The poems written for this project are about a similar past liaison of my own. It was the kind that, when many of the emotionally grisly times have long been forgotten, might wistfully be called "the one that got away."

O-15: HEATHER BRALEY
Sewing and Quilting with Emily Dickinson
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: As I thought about Emily Dickinson's poetry and the beauty that it contains, I began to wonder what I could create that would be beautiful and original. Because my grandmother taught me how to sew and quilt, I thought that experiencing poetry through quilt making would be quite original. The quilt making process was an emotional experience for me, because it reminded me of all of the things that I am blessed with – as well as the things that have been taken away. The following themes from Emily's poetry are woven into my quilt: family, love, beauty, nature, and God.

O-16: THOMAS CLARK
Emily Dickinson's Civil War
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: The influence of the Civil War on Emily Dickinson's poetry has only been fully recognized in the past 30 years. Today we recognize that her work was profoundly influenced by the war. In my project, I wanted to focus on Dickinson's Civil War poems, to marry her words with music and photography of the same era to create a slide show that showcased the verses in which Dickinson captured the senses of loss and majesty that filtered from the battlefields all the way back to Amherst.

0-17: RHONDA DAVIS
A Place for Ecopedagogy in Community Literacy
FACULTY SPONSOR(S): CHRISTOPHER WILKEY, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: In considering the powerful impact writing can have in both the personal and social arenas as a primary mode of communication and expression, we can clearly identify the importance of composition studies. Educators in composition studies, particularly those focused on community literacy and public engagement, have access to a unique critical platform where larger social issues that impact us both as a whole and on very personal levels are open to exploration. This paper explores the theoretical approach of Ecopedagogy as it applies to community literacy.

0-18: LAUREN MAGEE
High Tea at the Castle: An Emily Dickinson Podcast
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: This podcast was presented for my final project for Dr. Wallace's graduate-level literature course on Emily Dickinson and Henry James. Through studying Dickinson's life and verse, we discovered she was a progressive thinker with a deep passion for the sciences and poetry. I decided it would be interesting to write a creative piece in which Dickinson is extracted from her timeline in the 1860's and cast into the future during the 2012 London Olympics. This podcast is a glimpse into her reaction to her current predicament, via a conversation she has with the mysterious time traveler who kidnapped her.

0-19: ADAM WICKERT
CPS Early Childhood Education: Institutional Advocacy or What?
FACULTY SPONSOR(S): CHRISTOPHER WILKEY, ENGLISH
WEDNESDAY, APRIL 4TH, SL102, PRESENTATIONS 11-4PM
Abstract: This presentation examines the literacy sponsorship of the Cincinnati Public Schools Early Childhood Education Department and asks one key question: Does the department function as a literacy advocate, or literacy gatekeeper?

0-20: VINCENT FRALEY
In Rhyme of War: Motifs and Memories of England's Class of 1914
FACULTY SPONSOR(S): TERENCE FLEMING, HISTORY AND GEOGRAPHY
FRIDAY, APRIL 6TH, LA427, PRESENTATIONS 2-3:30PM
Abstract: This presentation examines English poetry composed during the First World War. The coincidence of subject matter and symbolism is investigated within a quantitative framework in the hope of elucidating a general combat experience based upon an author's particular education, class, and commission. These generalized experiences are subsequently compared with case studies of the work of Siegfried Sassoon, Charles Sorley, Isaac Rosenberg, and Wilfred Owen.

0-21: TOBIAS DEATON
Explosive Geographies: The Political Ecology of Mountaintop Removal in Appalachia
FACULTY SPONSOR(S): JOHN METZ, HISTORY AND GEOGRAPHY
FRIDAY, APRIL 6TH, LA427, PRESENTATIONS 2-3:30PM
Abstract: Coal mining has long been a part of the cultural, political, socioeconomic, and environmental landscapes of Central Appalachia. The relatively recent introduction of mountaintop removal coal mining has sparked intense controversies over the costs and benefits of using this technique for coal extraction. Oppositional groups decry that mountaintop removal causes severe health risks, large-scale environmental destruction, and economic depression. Proponents of mountaintop removal claim economic growth

and abundant and inexpensive electricity. This study examines the claims of both sides of the mountaintop removal debate within a political ecology framework.

0-22: SHANE WINSLOW
The Not-So Golden Age: The Economic Conditions during the Aztec Conquest
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
FRIDAY, APRIL 6TH, LA427, PRESENTATIONS 2-3:30PM
Abstract: This presentation examines the economic conditions that contributed to the conquest of the Aztec Empire by the Spanish. Specifically it discusses how the early Aztec economy developed as well as weak points that the Spanish could exploit. In addition, rare factors such as the presence of the infamous courtesan, adviser, and translator, Dona Marina will be addressed too.

0-23: JOEL BELCHER
Block Cipher Construction
FACULTY SPONSOR(S): CHRIS CHRISTENSEN, MATHEMATICS AND STATISTICS
TBD
Abstract: In 1997 the US Government announced that it wanted to replace the aged Data Encryption Standard (DES). Cryptographers submitted fifteen ciphers for consideration as the Advanced Encryption Standard (AES). At the end of a five-year competition, in 2001, Rijndael was selected as the winner from the five ciphers that survived into the final round. In addition to Rijndael, the finalists were Twofish, MARS, Serpent, and RC-6. This project constructed simplified versions of the four runner-ups. In this presentation I will present the encryption algorithm for a simplified RC-6 encryption algorithm.

0-24: DAVID KIME
Environmental history of Climax Mine, Colorado
FACULTY SPONSOR(S): JOHN ROCKAWAY, PHYSICS AND GEOLOGY
THURSDAY, APRIL 5TH, SC304, PRESENTATIONS 12-5PM
Abstract: Mines and mining locations have been a relatively ignored topic within the field of environmental history. The Climax molybdenum mine in Colorado provides an interesting case study for its economic importance over a long span of time and unique conditions found at 11,000 feet. This paper will investigate three areas of environmental history related to the Climax mine: chemical pollutants in the regional watersheds, the landscape change created by block caving followed by reclamation efforts, and finally, the rise and fall of a unique community that grew around the mine site in the mid 20th century.

0-25: KATLYN FARRIS
Women Stereotyping in Popular Culture
FACULTY SPONSOR(S): SHAUNA REILLY, POLITICAL SCIENCE AND CRIMINAL JUSTICE
WEDNESDAY, APRIL 4TH, FH447 2PM
Abstract: Stereotyping is typical in all aspects of popular culture affecting the way people see gender roles. This portfolio looks into female stereotypes throughout popular culture within the last decade. Artifacts compiled represent different types of female stereotypes typically seen across multiple aspects of popular culture. Research for this paper focuses on the repetition of negative stereotypes for women throughout widespread entertainment in the United States. The significant for this topic comes from the effects stereotyping has on individuals and their beliefs about the abilities of a certain type of people.

POSTER PRESENTATIONS

Abstracts are listed by department of the first faculty sponsor.

P-1: SAMANTHA MCKENZIE, EMILY BROCKSCHMIDT, CHRISTINE CLEMENTS, ALLEN DAVIS, AARON MCCOY, JENNIFER SEAMAN, RYAN WILSON
Student Perceptions of Biodiversity Conservation
FACULTY SPONSOR(S): CHARLES ACOSTA, BIOLOGICAL SCIENCES
Abstract: We conducted a survey of Northern Kentucky University students to better understand campus-wide perceptions of the importance of biodiversity and species extinctions. The questions were designed to evaluate students' awareness of biodiversity loss, impacts of human population growth and human activity, and personal responsibility and concern. Overall, a large proportion of NKU students across academic majors was aware of this urgent problem, and also recognized the link to human activities. An interesting followup study would be to compare perceptions of a similar demographic segment of the wider general public.

P-2: MEGAN GLASSFORD, SHONNA BARNES, SARAH BORGMAN
Testing the Efficacy of Conceptual Change Texts on Undergraduates' Understanding of Genetics
FACULTY SPONSOR(S): BETHANY BOWLING, BIOLOGICAL SCIENCES
Abstract: After formal instruction in genetics, many people still hold misconceptions about DNA, chromosomes, genes, and mutations. This study involves a conceptual change strategy to challenge three common misconceptions among undergraduate non-science majors enrolled in general biology and genetics courses. Students were randomly assigned to the control or experimental group and were assessed multiple times throughout the course. Responses are being scored using valid and reliable rubrics allowing statistical analysis of conceptual change effectiveness. The study continued this spring with a portion of the students participating in a one-year post-course assessment.

P-3: JENNIFER TAYLOR, LAURA BROWN, TONY BANKAMPER, MATT WOESTE
Force in Stem, (Focus on Opportunities, Recruitment, Community and Engagement in Science, Technology, Engineering and Mathematics)
FACULTY SPONSOR(S): BETHANY BOWLING, BIOLOGICAL SCIENCES;
ALISON ANTES, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: Project FORCE (Focus on Occupations, Recruiting, Community and Engagement) spans five academic departments and seeks to increase the recruitment, graduation, and retention rate of students in STEM (Science, Technology, Engineering and Mathematics) disciplines. This multidimensional project includes STEM living and learning communities, STEM Ambassadors, and undergraduate research opportunities for students in STEM disciplines. The project, in its second year, is continuing to evolve based on evaluation and feedback. This project has demonstrated that students are gaining various leadership, social, and academic experiences. The project is funded by the National Science Foundation (DUE STEP grant #0969280).

P-4: AMY ASHWORTH, AUSTIN BROWN
Quantification of CYP1A1 activity in PCB-treated mice using an EROD Assay
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Polychlorinated biphenyls are widespread pollutants that cause neurological damage in children exposed during gestation and lactation. Our previous work identified two genes in mice that increase susceptibility to PCB-induced neurotoxicity. We also found increased expression of the metabolic enzyme CYP1A1 in the brains of the most susceptible mice. In this project, we are following up on those observations by measuring CYP1A1 enzymatic activity using the EROD assay. We will compare enzyme activity in two brain regions affected by PCB exposure: the cortex and cerebellum. This will help determine if CYP1A1 dysregulation contributes to PCB neurotoxicity.

P-5: AUSTIN BROWN, AMY ASHWORTH, JOCELYN FOWLER, HELEN GARBER, ANNA LANG
Stress testing and weight gain in mice exposed to polychlorinated biphenyls
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Glucocorticoids are steroid hormones that regulate many functions of the body including metabolism. In times of stress, the brain signals the adrenal gland to release hormones, including glucocorticoids. Some pollutants can mimic the effects of glucocorticoids, including polychlorinated biphenyls (PCBs). PCBs are organic pollutants that were banned in the 1970s but are still widely found in the environment

and food supply. Previously, we found changes in the response to stress in mice exposed to PCBs during development. The response varied depending on the genotype of the mice tested. In our follow-up tests, we are using light/dark exploration, tail suspension, and novelty-suppressed feeding and monitoring changes in animal weight as they age.

P-6: JOCELYN FOWLER, AMY ASHWORTH
Porsolt Forced Swim to assess genetic susceptibility to polychlorinated biphenyls
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Polychlorinated biphenyls (PCBs) are persistent organic pollutants which cause learning and memory deficits in children exposed during early brain development. Our laboratory is focused on identifying genes which alter susceptibility to developmental PCB exposure. We model human exposures using mice with genetic variations in the aryl hydrocarbon receptor (AHR) and cytochrome P450 1A2 (CYP1A2). Previously, we found learning and memory deficits in two lines of *Cyp1a2(-/-)* knockout mice exposed to PCBs during gestation and lactation. In this study, the Porsolt forced swim test was employed to determine if alterations in the hypothalamus-pituitary-adrenal (HPA) axis were responsible for these observed differences.

P-7: HELEN GARBER, ANNA LANG
Fear conditioning in mice exposed to polychlorinated biphenyls (PCBs)
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Polychlorinated biphenyls (PCBs) are organic pollutants that were banned in the 1970s due to their high toxicity. Our laboratory focuses on susceptibility to PCB exposure using mice with genetic differences similar to those found in humans. Developmental PCB exposure causes hippocampal-dependent learning and memory deficits in two lines of *Cyp1a2(-/-)* knockout mice compared with PCB-exposed *Cyp1a2(+/+)* mice. We are using Delayed Fear Conditioning to determine if these mice are also susceptible to deficits in emotional memory which is controlled by the amygdala. On the first day, mice learn to associate a sound with a slight foot shock. Delayed testing determines if the mice remember the either context and/or the sound associated with the shock.

P-8: AMANDA GREENE
Assessment of animal health in three highly inbred lines of mice
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Spontaneous mutations that cause microphthalmia, alopecia, and malocclusions arise in various strains of inbred mice including *C57BL/6J* (B6), the primary strain used in our lab. Microphthalmia is autosomal recessive disorder that causes a small eye phenotype. Alopecia is a non-scarring, inflammatory form of hair loss. Malocclusions occur when the incisors overgrow and can lead to malnourishment and dehydration. Mice with these abnormalities are unsuitable for neurobehavioral tests which are regularly used in our lab. The objective of this study was to compare the incidence and prevalence of these abnormalities in two knockout mouse lines backcrossed onto a B6 background with the rate in the original B6 strain.

P-9: ANNA LANG, HELEN GARBER
Motor function in *Cyp1a1_Cyp1a2(-/-)* double knockout mice
FACULTY SPONSOR(S): CHRISTINE PERDAN CURRAN, BIOLOGICAL SCIENCES
Abstract: Previous work in our lab uncovered motor deficits in *Cyp1a2(-/-)* mice which are missing a key metabolic enzyme normally expressed in the liver, but also reportedly expressed in the cortex and cerebellum of the brain. To follow up our earlier work, we obtained *Cyp1a1_1a2 (-/-)* mice that lack CYP1A2 and a related enzyme CYP1A1. We are comparing these mice and wild-type *Cyp1a1_Cyp1a2 (+/+)* mice to determine if the motor deficits are exaggerated in the double knockout line. We are using the same tests: rotarod, gait analysis, sticker removal, and pole climbing. This test battery can identify deficits in two brain regions associated with motor function.

P-10: KATHERINE BACHMAN, KELSEY CARNAHAN
Measuring the mechanisms of digestion and anaerobic fermentation in developing vertebrates with a dissolved oxygen microprobe
FACULTY SPONSOR(S): RICHARD DURTSCHE, BIOLOGICAL SCIENCES
Abstract: Previous research from our lab has documented larval anurans to be herbivorous and detritivorous feeders. The extent to which cellulose breakdown and fermentation occurs in the GI tract of larval anurans is unknown. We used a dissolved oxygen microelectrode to measure oxygen levels along the gut to indicate locations of anaerobic fermentation. These microprobes were constructed in our lab, and each was calibrated using standard concentrations of dissolved oxygen in water. Regression analyses gave R2 values between 0.90-0.95. Gastrointestinal tract samples were obtained from larval anurans with readings taken from up to 15 positions along the gut.

P-11: SARAH CROSS
Measurement of differential acid concentration along the developing gastrointestinal tract of tadpoles with an improved pH microprobe
FACULTY SPONSOR(S): RICHARD DURTSCHE, BIOLOGICAL SCIENCES
Abstract: Digestion in vertebrates depends upon chemical changes along the gut. Gastrointestinal (GI) tract measurements across developmental stages can document ontogenetic shifts in acid concentrations which suggest upregulation of digestive activities. Research in our lab has shown changes in pH along the GI tract, suggesting digestive processes similar to adult vertebrates. To increase measurement precision and accuracy, we have fabricated an improved pH microelectrode with a built-in micro reference electrode. These solid-state microelectrodes with tip diameters of 10 µm maintain a precision of R2 = 0.95 against standard pH solutions, and we are testing them on locally collected tadpoles.

P-12: MITCH MERCER
Population dynamics of amphibians and reptiles at a rejuvenated brownfield
FACULTY SPONSOR(S): RICHARD DURTSCHE, BIOLOGICAL SCIENCES
Abstract: The Lafarge Gypsum Plant is currently rejuvenating a brownfield to a wetland; however, soil contaminants from industrial waste may retard reclamation rates. As wetland species, amphibians are good sentinels of environmental health because many life processes in their moist skin are sensitive to contaminants. We assessed the amphibian and reptile species diversity and abundance at the Lafarge site compared to the nearby St. Anne Wetland natural area. Specimens were collected, marked, and re-released. Field recorders monitored frog calls of various species. Results show Lafarge's site may sustain life for some, but not all expected herpetefauna species found within a wetland habitat.

P-13: VIRGINIA SHELLEY, SARAH SCHMEES, MEGAN O'KEEFE, PATRICK O'HEARN, HELEN GARBER, SARA GILES, COURTNEY GRAVES, LINDSAY GRAYSON, MICHELLE GRIESINGER, MAGGIE LUTZ, JODI MARCH, JAMES MERCER, CAROL MILBURN-SWARTS
Expedition Costa Rica: "A Study of the Neotropics"
FACULTY SPONSOR(S): RICHARD DURTSCHE, BIOLOGICAL SCIENCES;
MIRIAM KANNAN, BIOLOGICAL SCIENCES
Abstract: Over Spring Break 2012, twelve advanced biology students explored the tropical ecosystems of Costa Rica. This bilingual Study Abroad program and Tropical Ecology Laboratory (BIO 463) course gave students hands-on experiences testing theoretical concepts learned in lecture. We carried out field studies on 1) rainforest gaps, 2) stream snail population dynamics, 3) tidal zone organisms on Isla de Caños, 4) dry forest ant community structure, and 5) bird diversity comparisons across ecosystems. Most of our time was spent in the Osa peninsula rainforest, but we also visited cloud forests, dry forests, the forest canopy, and rafted a crocodile-infested river.

P-14: KRISTOFFER SPICER, PATRICK O'HEARN
Geomorphometric frog embryo teratogenesis assay of carvone using *Xenopus laevis*
FACULTY SPONSOR(S): RICHARD DURTSCHE, BIOLOGICAL SCIENCES
Abstract: White Nose Syndrome (WNS), caused by the European fungus *Geomyces destructans*, is decimating bat populations in North America. R(-)-carvone, an antifungal agent, was tested for ecotoxicological impacts on larvae of the African clawed frog (*Xenopus laevis*) as a potential WNS combatant. This study allows for geomorphometric measurements during the first 96 hours of development in serial dilutions of carvone in FETAX solution. This study aims to find an LC_{50} and a narrow, lethal concentration range to be used as a basis for further investigation into the preservation of bat species, cave ecosystems, and elimination of WNS in the United States.

P-15: EMILY ESHAM, HANNA DASENBROCK, ROBERT SPAULDING
The Identification of Rat Endothelial Cells using the Rat Endothelial Cell Antibody- 1 (RECA-1)
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
HEATHER BULLEN, CHEMISTRY; RUTH HEMMER, BIOLOGICAL SCIENCES
Abstract: Nanoparticles are being studied as a new method of delivering drugs across the blood-brain barrier (BBB) to treat neurological disorders. The BBB is composed mainly of astrocytes and endothelial cells. In our laboratory a co-culture of primary rat astrocyte and endothelial cells is used to model the BBB to test various nanoparticles. The goal is to verify the phenotype of endothelial cells isolated from rat brains. RECA-1 is an antibody that binds to an endothelial cell surface antigen and shows no reactivity with other cell types. This antibody confirms that we are using endothelial cells isolated from rat brains.

P-16: SHALEIKA GRAY, ROBERT SPAULDING, HANNA DASENBROCK
Comparison of toxicity of polybutylcyanoacrylate nanoparticles on astrocytes and endothelial cells.
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
HEATHER BULLEN, CHEMISTRY; RUTH HEMMER, BIOLOGICAL SCIENCES
Abstract: Millions of people suffer from neurological diseases, disorders, and injuries. Unfortunately, it is difficult to design drugs that can pass through the blood-brain barrier (BBB) because of tight junctions formed by astrocytes and endothelial cells in the walls of the capillaries. There is a potential delivery vehicle that could be used to pass through the BBB—nanoparticles (NPs) aided by a special coating—but there may be risks associated with using nanoparticles. We are testing the toxicity of polybutylcyanoacrylate NPs using a lactate dehydrogenase (LDH) assay, which measures the cell membrane integrity. Cytotoxicity was measured from cell cultures exposed to one of the following treatments: polybutylcyanoacrylate NPs, sodium azide, and physiological saline. The results show that the NPs with the anti-cancer drug doxorubicin are more toxic than those with polysorbate 80 (Tween). Further experimentation is needed to determine doses of NPs that are less harmful.

P-17: ANDREW HALL, ROBERT SPAULDING, HANNA DASENBROCK
Resazurin as a toxicity measure of nanoparticle-induced cell toxicity.
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
HEATHER BULLEN, CHEMISTRY; RUTH HEMMER, BIOLOGICAL SCIENCES
Abstract: One major key to progressing cancer treatment is the development of techniques to guarantee specific drug delivery of chemotherapy agents. Scientists are looking to nanotechnology to provide this specificity. This study involves the use of nanopartcles (NPs) with polybutylcyanoacrylate (PBCA) cores with a polysorbate 80 coating loaded with an anti-cancer agent, doxorubicin. A two cell culture mimicking the blood-brain barrier (astrocytes and endothelial cells) will be observed for signs of toxicity using these NPs. A spectrophotometric assay will be conducted using the dye Resazurin to measure the mitochondrial activity of the cell cultures. Cytotoxicity can be assessed by the fluorescence of Resazurin using a spectrophotometer.

P-18: JUSTIN FELDMANN, SHRIVER WITHROW
Using an Asymptomatic Dose of MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) to Assist in Developing a Novel Mouse Model of Parkinson's Disease
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
PATRICK SCHULTHEIS, BIOLOGICAL SCIENCES
Abstract: Parkinson's disease (PD) is a neurodegenerative disorder with no known cure. The exact cause of the disease is currently unknown but is caused by a depletion of dopamine neurons in the substantia nigra (SN). The purpose of this project is to investigate whether a sub-symptomatic dose of the PD inducible drug MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) will have an effect on dopamine neurons of the SN of a wild type mouse. The number of dopamine neurons in the SN will be counted and analyzed via stereological analysis. The results of this project could assist in our goal to develop a new mouse model of PD, which could be used to test for new treatments to help alleviate the symptoms associated with PD.

P-19: SHRIVER WITHROW, JUSTIN FELDMANN
Gait analysis of wild-type mice injected with asymptomatic doses of MPTP.
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
PATRICK SCHULTHEIS,BIOLOGICAL SCIENCES
Abstract: Parkinson's disease (PD) is a neurological disorder with motor symptoms including shaking, rigidity, and slowness of movement. MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) is a neurotoxin that produces PD like symptoms by destroying dopaminergic neurons. We injected very low doses of this neurotoxin in wild type mice to produce an early model of the disease that will produce no motor symptoms but will cause a potential loss in dopamine neurons . Using Gait Analysis, we will determine if low doses of the neurotoxin are truly asymptomatic in this strain of mice. This will enable us to test this asymptomatic dose in mice who are possibly genetically susceptible to PD.

P-20: SARAH HAMILTON
A comparison of earthworm communities, plant assemblages and soil characteristics in previously glaciated and unglaciated forests.
FACULTY SPONSOR(S): KRISTINE HOPFENSPERGER, BIOLOGICAL SCIENCES
Abstract: Earthworms were eliminated from previously glaciated areas of North America during the last ice age, but have since been reintroduced and are currently altering the ecosystem dynamics of northern deciduous forests. Our project aimed to compare the relationships between the worm communities, plant assemblages and soil characteristics of our sample sites along the Ohio/Kentucky glacial gradient. Worms and soil cores were collected from previously glaciated and unglaciated sites and analyzed in our lab; flora species were identified and recorded on site. Data analyses indicate that earthworm species, plant species and soil characteristics all vary between glaciated and unglaciated sample sites.

P-21: ALICIA WEBER, RENEE KIRTMAN, KRISTINE HOPFENSPERGER
Effects of Amur honeysuckle on native species and soil nutrients
FACULTY SPONSOR(S): KRISTINE HOPFENSPERGER, BIOLOGICAL SCIENCES
Abstract: *Lonicera maackii* (Amur honeysuckle) is an invasive shrub that readily outcompetes native species. The objective of the first year of our study was to compare effects of honeysuckle on native plant communities and soil nutrients in areas that have had honeysuckle removed with control areas. Our results suggest that the presence of honeysuckle has a great effect on the amount of seed reinvading an area, native seed bank density and species richness, and soil nutrient concentrations and process rates. Our study will aid restoration managers by determining the efficacy of removing honeysuckle and subsequent effects to the ecosystem.

P-22: JOSEPH STRANO
Theca construction by *Difflugia* using synthetic silicon microspheres in preference to natural occurring materials
FACULTY SPONSOR(S): MIRIAM KANNAN, BIOLOGICAL SCIENCES
Abstract: *Difflugia* is one of several genera of single cell Amoebozoans that utilize sand granules or diatoms to build a shell or theca. We observed *Difflugia* collected from Sharon Woods Lake constructing thecae from synthetic St ber silica microspheres. This study found that *Difflugia* chose St ber particles over their naturally occurring theca building materials. Time-lapse photos and acanning electron micrographs reveal *Difflugia* selectively building perfectly round-cup thecae when given the options of St ber particles, sand and diatom frustules. These findings have implication to: Nanotechnology- building nano-cups; to environmental science- potential changes in behavior of a common unicellular aquatic organism in the presence of a novel man-made material; to behavioral science – first documented evidence of complex material selection behavior by a simple one-celled microorganism; and to taxonomy, with the discovery of a new morphospecies of *Difflugia*.

P-23: BERIS DIZDAR
Human innate immune response to viral peptides corresponding to the G protein of two respiratory pathogens
FACULTY SPONSOR(S): JOSEPH MESTER, BIOLOGICAL SCIENCES
Abstract: Our study examined the innate immune response generated when human macrophage and natural killer cells were exposed to peptides corresponding to homologous regions of the G protein of human respiratory syncytial virus (HRSV) and metapneumovirus (HMPV). These peptides elicited both protective and pathological cytokine responses. The G peptides from HRSV induced mainly immunosuppressive or allergic-type cytokines, whereas the G peptides of HMPV mostly induced cytokines thought to be protective against viral infection. These newly identified regions may be important for determining the outcome of viral infection. Related regions of these viral G proteins elicited diverse immune responses.

P-24: LORYN FACEMIRE
Novel Cytokines Involved in Allergic Immune Response to Human Respiratory Syncytial Virus
FACULTY SPONSOR(S): JOSEPH MESTER, BIOLOGICAL SCIENCES
Abstract: The immunomodulatory effects of human respiratory syncytial virus (HRSV) are recognized but not fully defined. The purpose of this study was to determine the potential role of novel cytokines and chemokines in the human macrophage and natural killer cell response to HRSV. Cytokine and chemokine expression was measured using real-time polymerase chain reaction (RT-PCR). These immune factors may play a key role in mediating the allergic response, and may also contribute to viral disease in the HRSV-infected host.

P-25: SHELBY KOZLOWSKI
Immune responses of human lung epithelial cells to prevalent respiratory viruses
FACULTY SPONSOR(S): JOSEPH MESTER, BIOLOGICAL SCIENCES
Abstract: Respiratory syncytial virus (RSV) and influenza virus (flu) are leading causes of morbidity and mortality. To better understand virus-host interactions that influence the course of infection, we determined the influence of viral proteins on immune responses from lung epithelial cells. Of all the immune responses tested, surfactant protein-C (SP-C) and interleukin-8 (IL-8) demonstrated the most variable responses. Flu virus proteins more strongly induced a protective SP-C response, while RSV more strongly induced a pathological IL-8 response. Ongoing research includes additional viral protein and peptide testing. Results may enhance the design of antiviral interventions.

P-26: AMY CLIPPINGER, MOLLY GRIFFITH, ABBEY BAILES, LINDSEY GRIFFITH
Behavioral characterization of *Atp13a2* deficient nice carrying a transgenic Alzheimer's gene
FACULTY SPONSOR(S): PATRICK SCHULTHEIS, BIOLOGICAL SCIENCES; MARK BARDGETT, PSYCHOLOGICAL SCIENCE
Abstract: An animal model for Kufor-Rakeb syndrome, an atypical form of Parkinson's disease, has been generated by knocking out the *Atp13a2* gene in mice. This gene encodes a lysosomal P-type transport ATPase that is thought to be necessary for normal lysosomal function, particularly that of protein degradation. Accordingly, we postulate that *Atp13a2* deficient mice (*Atp13a2-/-)* will be more prone to neurodegenerative diseases such as Alzheimer's, in which protein aggregates have been shown to contribute to neuronal dysfunction and cognitive impairment. To test this hypothesis we introduced a gene into *Atp13a2* deficient mice that is associated with familial Alzheimer's disease, the human mutant amyloid precursor protein gene (APP). Mice were tested in the Morris water maze spatial memory task at 6, 9 and 12 months. Brains were analyzed for the presence of protein aggregation.

P-27: JODIE ULM, DIANNEA WILSON
Morphological comparison of *Physalis pubescens* and *Physalis grisea*
FACULTY SPONSOR(S): MAGGIE WHITSON, BIOLOGICAL SCIENCES
Abstract: *Physalis grisea* (the ground cherry) is a cultivated relative of *P. pubescens*. The ranges for the two species overlap in the southeastern United States, and these species look similar. Further distinctions between these species are needed to improve dichotomous keys for identification. The fruits and seeds of *P. pubescens* and *P. grisea* will be harvested, counted, and weighed. Statistical comparisons of fruit and seed data will be conducted to determine if additional morphological distinctions between these species can be made. Species samples will be grown in a greenhouse simultaneously to monitor possible distinctions in growth for easy field identification.

P-28: BETH VOLPENHEIN, LINSEY SCHRADER, CARISSA LLOYD, BRITTANY CORDE, CHRISTIAN REYES, MARIA WEICKERT
Alternative Spring Break Mexico City 2012
FACULTY SPONSOR(S): MATTHEW HACKETT, CAMPUS RECREATION
Abstract: During Spring Break 2012, six students traveled to Mexico City, Mexico to explore how universities in Mexico approach recreation and wellness and to gain competencies in cross culture awareness. We visited university recreation facilities, Olympic training facilities and cultural sites. Our group also assisted with an English language learning program for P-12 students. We returned to NKU with a greater understanding of the similarities and differences between recreation facilities and programs in Mexico and the United States, as well as a greater awareness of Mexican culture and language.

P-29: MARILYN HENRY
Antimicrobial effects of dental composites containing silver nanoparticles
FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY
Abstract: Silver nanoparticles have been combined with various dental composites in an effort to create an effective composite material that may minimize the growth of bacteria beneath a dental filling. The antimicrobial effects of silver can significantly minimize the risk of severe infections in the gums. Several different sizes and shapes of silver nanoparticles were combined with dental composites in order to synthesize a composite that is both antimicrobial and the color of human teeth. The effects of particle size and surface area on the antimicrobial response to *Pseudomonas aeruginosa* were evaluated with contact angle analysis and atomic force microscopy.

P-30: MATTHEW STARK, JOSEPH SQUERI, ADAM GOTTULA, ROBERT SPAULDING
Toxicity evaluation of doxorubicin-loaded polybutylcyanoacrylate (PBCA) nanoparticles using *in vitro* and *in vivo* models of the blood-brain barrier
FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY; KRISTI HAIK, BIOLOGICAL SCIENCES
Abstract: Polybutylcyanoacrylate (PBCA) nanoparticles (NPs) are a promising vehicle for drug delivery to the brain due to their ability to pass the blood-brain barrier (BBB). However, their toxicity is unknown. The biophysical characterization of PBCA NPs loaded with doxorubicin has been evaluated. Compression isotherms and atomic force microscopy (AFM) have helped to evaluate the interaction and miscibility of the NPs with BBB models, providing insights into NP toxicity. Results were correlated with glial fibrillary acidic protein immunohistochemisty following systemic administration of PBCA nanoparticles in rats.

P-31: SAMANTHA SUTKAMP, ROBERT SPAULDING
Evaluation of the interaction of silver nanoparticles with *in vitro* models of the blood-brain barrier
FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY; KRISTI HAIK, BIOLOGICAL SCIENCES
Abstract: Silver nanoparticles (Ag NPs) are components of a variety of building materials and household products. There is also an interest in Ag NPs for their antimicrobial and antiviral properties. However it is unclear what the potential health and environmental risks might be. We present a combined biophysical and cellular approach to evaluate Ag NP toxicity. The biophysical interactions of Ag NPs with model lipid membranes were evaluated using Langmuir Blodgett compression isotherms. Results were correlated with cellular toxicity measurements using endothelial cell culture models of the blood-brain barrier.

P-32: ALEXANDER YARAWSKY
Impact of siderophores in biofilm formation on bone and medical implants
FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY
Abstract: Biofilm formation is problematic in industrial and medical settings. Attenuated total reflectance Fourier Transform infrared spectroscopy (ATR-FTIR), in conjunction with dissolution analysis and scanning probe microscopy (SPM), was used to investigate the interaction between the enterobactin, a siderophore produced by *Escherichia coli*, with nanoscale metal (oxide) surfaces which model stainless steel and titanium medical implants. In addition, the synthesis and characterization of nanoscale hydroxyapatite sol-gels, which serve as a model substrate for bone will be presented. The implications of enterobactin in the initial stages of *E. coli* biofilm formation on these surfaces will be discussed.

P-33: DANIEL GHERE
Gas chromatography-mass spectroscopy of estrogen photoproducts
FACULTY SPONSOR(S): PATRICK HARE, CHEMISTRY
Abstract: The photochemistry of estrone and 17-beta-estradiol was monitored by use of gas chromatography-mass spectroscopy in several solvents following exposure to 254 nm light. The rate of photolysis varied between solvents used with ethyl acetate being the fastest and water being the slowest, and the overall rate was much slower for estradiol than estrone. Estrone's photoproducts included three isomeric products, solvent additions, and several other very minor products. No major product structure was observed for estradiol, but rather many different minor breakdown products were found. Solvent additions were also less common than in estrone.

P-34: ERICA AMATO, KEVIN BONFIELD, ADAM MCCALLUM, ANTHONY BANKEMPER
New selective nonsteroidal aromatase inhibitors: Synthesis and inhibitory activity of 3-phenylchroman-4-ones (isoflavanones)
FACULTY SPONSOR(S): LILI MA, CHEMISTRY; STEFAN PAULA, CHEMISTRY
Abstract: Thirteen isoflavanone derivatives with various substituents at the C6 position or modified with fluorine at different positions were synthesized utilizing the gold-catalyzed annulation reaction. These compounds were characterized by 1H NMR, 13C NMR and HRMS. The purity of each compound was established by HPLC analysis. The inhibitory potencies against aromatase by these isoflavanones were tested using a fluorescence assay. Docking poses of active isoflavanone inhibitors were predicted by computer modeling.

P-35: KEVIN BONFIELD
Biological evaluation of dihydrocoumarin compounds as xanthine oxidase inhibitors
FACULTY SPONSOR(S): LILI MA, CHEMISTRY
Abstract: Gout is an arthritic condition caused by hyperuricemia, high levels of uric acid in the blood, leading to joint inflammation. One factor that can lead to hyperuricemia is a malfunctioning xanthine oxidase enzyme. Xanthine oxidase catalyzes the oxidation of hypoxanthine to xanthine and the oxidation of xanthine to uric acid. Coumarin compounds are thought to possess therapeutic properties in treating hyperuricemia by acting as an inhibitor of xanthine oxidase. This study investigates the influence of hydrogenation reactions involving coumarins to form dihydrocoumarin compounds. These dihydrocoumarin compounds were analyzed for their ability to inhibit xanthine oxidase by fluorescent assay techniques.

P-36: ADAM MCCALLUM, KEVIN BONFIELD, ERICA AMATO, STEVEN EDWARDS, HANNAH AGARD, DAVID ROY, JAMES KEELER
Development of a new class of aromatase inhibitors: Design, synthesis, and inhibitory activity of 3-phenylchroman-4-one (Isoflavanone) derivatives
FACULTY SPONSOR(S): LILI MA, CHEMISTRY
Abstract: Inhibiting aromatase is a promising new strategy for treating hormone-

dependent breast cancer. Natural products are becoming innovative sources of aromatase inhibitors, including newly reported studies of isoflavone and isoflavanones. In this study, the design and synthesis of isoflavanone derivatives as potential aromatase inhibitors is reported, where various functional groups were coupled to the A and B aromatic rings of the isoflavanone scaffold. These structural modifications were implemented on the scaffold via an enhancement to the reaction scheme: a newly-adopted microwave-assisted gold-catalyzed annulation reaction using structural analogues of hydroxyaldehyde and phenylacetylene as precursors to the isoflavanone derivatives.

P-37: KEVIN BEERS, AUSTIN BROWN
Measures of science process skills in the General Chemistry Laboratory
FACULTY SPONSOR(S): KEREEN MONTEYNE, CHEMISTRY
Abstract: Process skills are an important component for student success in lab-based courses. These skills include the ability to control variables and to create and interpret graphs. In this research project, students enrolled in general chemistry at two institutions were assessed using the Test of Integrated Process Skills (TIPS II). The TIPS II test has 36 multiple choice questions designed to assess six categories of process skills. The goal of the project is to determine whether TIPS II can be used to measure change in student process skills as part of a laboratory curriculum project that specifically targets skill development.

P-38: TRACEY DAUGHERTY
The relationship between misconceptions and student reasoning about properties of gases
FACULTY SPONSOR(S): KEREEN MONTEYNE, CHEMISTRY
Abstract: Misconceptions pose significant barriers to learning and lead to shallow understanding for students. Gas questions were included on tests and quizzes administered to students enrolled in general chemistry classes at Northern Kentucky University and California State University, Fullerton. Student responses to the gas questions were analyzed in order to investigate student reasoning about the properties of gases. The responses were also analyzed in order to determine the type of misconceptions present. The results of these analyses were compared to examine how student misconceptions and reasoning were related.

P-39: ERIN ROWAN
Representational competence in chemistry - particulate models
FACULTY SPONSOR(S): KEREEN MONTEYNE, CHEMISTRY
Abstract: Science disciplines use different types of representations to express their concepts. In chemistry, particulate representations are an important means to learn about the interactions of atoms and molecules. This research project examined representational competence in terms of how students interpret and connect the different types of representations used to describe chemical concepts. Several research items were delivered on written course assessments, through online assessments, and in individual student interviews in chemistry courses for science majors. It was found that many students were able to make appropriate connections between representations, but the different states of matter did influence student responses.

P-40: ANTHONY BANKEMPER, KEVIN BONFIELD, ERICA AMATO, HANNAH AGARD, JEFFREY STELLER, JAMES KEELER, DAVID ROY
Evaluation of isoflavanones as aromatase inhibitors by experimental and computational methods
FACULTY SPONSOR(S): STEFAN PAULA, CHEMISTRY; LILI MA, CHEMISTRY
Abstract: The medicinal value of inhibitors of the enzyme aromatase stems from the inhibitors' potential as drugs against hormone-dependent breast cancer. The development of aromatase inhibitors that interfere with estrogen synthesis has been pursued and among these inhibitors, isohydrocoumarins and isoflavanones have shown promise in preliminary studies. Isoflavanone derivatives were synthesized and evaluated using fluorescence-based assays to determine activity. These compounds were also computationally docked into the X-ray crystal structure of aromatase to guide future synthetic efforts.

P-41: MATTHEW WOESTE, KEVIN CONNOLLY, JEFFREY STELLER, EMILY HOFMANN
Inhibition of the Sarco/Endoplasmic Reticulum Calcium ATPase by bisphenols
FACULTY SPONSOR(S): STEFAN PAULA, CHEMISTRY;
MANORI JAYASINGHE, CHEMISTRY
Abstract: Strategic inhibition of transmembrane enzymes has proven to be an effective mechanism for treatment of certain disease processes. One such enzyme, Sarco/Endoplasmic Reticulum Calcium ATPase (SERCA), functions by coupling the hydrolysis of ATP to the transport of Ca2+ ions across intracellular membranes. We and others have successfully inhibited SERCA at micromolar concentrations with a class of commercially available bisphenol derivatives. Multiple compounds were measured for inhibitory potency using bioassays. Based on structure-activity relationships, we screened potential compounds for inhibitory potency. Further classification included ligand docking and molecular dynamics to elucidate interactions between bisphenol analogs and SERCA on a molecular level.

P-42: KATHERIN ELSON
Sarco-Endoplasmic Reticulum Calcium ATPase (SERCA) inhibitor synthesis for prostate cancer cells
FACULTY SPONSOR(S): KC RUSSELL, CHEMISTRY
Abstract: In 2011, an estimated 240,890 cases of prostate cancer occurred in the United States. For this reason, research has focused to develop compounds capable of initiating apoptosis in prostate cancer cells. An enzyme in prostate cancer cells known as sarco/endoplasmic reticulum calcium ATPase (SERCA), functions by transferring Ca2+ ions from the cytosol into the sarcoplasmic reticulum. When SERCA ion transport is inhibited, cell death occurs. The purpose of this project is to link a SERCA inhibitor to a pre-synthesized peptide for antigens excreted by prostate cancer cells. This will be performed using customary organic laboratory techniques, NMR, and mass spectroscopy.

P-43: CORINNE BASINGER
NKU molecular wire research: The combination of molecular wire and fullerene synthesis to create a polymer with both fullerenes and transition metals.
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: The focus of our research group is to design new devices that utilize electron movement following excitation by light. To achieve this goal, our small molecule studies must be expanded into polymeric systems. This poster presents our initial efforts in polymerizing monomers that involve our substituted fullerenes and ϖ-conjugated organics typically used in polymer design. The inclusion of bipyridines allows us to also incorporate well-known transition metal chromophores into the polymers. Synthetic and characterization results will be presented. Of particular interest is the use of gel permeation chromatography (GPC) characterization to give us a good idea of the size of our synthesized polymers.

P-44: ZACHARY EWING, CHAD MASCHINOT, DEREK GIBBS
NKU fullerene research: "Two paths to the same molecule" – synthesis of fullerene-bipyridine ligands
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: Our group is interested in designing supramolecular systems that are used for photoinduced charge transfer applications. One of our main objectives has been to produce substituted fullerenes that facilitate metal-catalyzed coupling to other chemical subunits to create our desired systems. However, the modular nature of these permits alternate synthetic pathways to arrive at the same end product. This poster presents our attempts to investigate various pathways to arrive at the desired molecules, and the pros and cons of each. Ultimately, our resulting subunits can be used in polymer synthesis that can potentially be applied as paint for solar cell applications.

P-45: EMMA JONES
NKU fullerene research: Shortening the bridge with phenanthrolines
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: Our group is interested in designing novel supramolecular systems that could be used for photoinduced charge transfer applications. While our research group is interested in uniting fullerene and transition metal subunits, initial spectroscopic investigations have suggested that their interaction is not as strong as desired. An alternative route redesigns the linkage between these subunits, shortening their distance. This poster presents our efforts to synthesize substituted phenanthrolines that can be joined to a transition metal and a fullerene using known chemical reactions. Initial efforts to combine these systems with transition metal chromophores and their spectroscopic behavior will also be presented.

P-46: CHAD MASCHINOT, ZACH EWING, DEREK GIBBS
NKU fullerene research: Synthesis of fullerene, coronene, and corannulene precursors for organometallic supramolecular systems
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: Our group is interested in novel supramolecular systems for photoinduced charge transfer applications. This poster focuses on the synthesis of precursors utilizing derivatives of fullerenes, coronene, or corannulene, and a transition metal enabling the system to harness energy from UV and visible light and the efficient transfer of energy. A bipyridine bridge is used for two reasons. The first is to electrically connect the two fullerene handles together via conjugation. The bipyridine also serves as an attachment for a metal to attach. This system will then be utilized in polymers that could be applied as paint for solar cell applications.

P-47: MARGARET POWELL
NKU Fullerene research: Spectroscopic study of charge transfer in fullerene-transition metal supramolecular organometallic systems
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: Our research group is interested in the design of supramolecular systems that efficiently move charge (electrons) when excited by light. One series of compounds that we have examined links fullerenes and transition metals through organic linkages that should allow our desired charge movement. This poster presents spectroscopic data on both small molecules and preliminary polymers that show the possibility of charge transfer following light excitation. These results could potentially lead to the use of these systems in a variety of scientific fields, specifically photo and environmental chemistry.

P-48: KAITLYN SULLIVAN
NKU molecular wire research: Spectroscopic study of charge transfer in fullerene-containing polymeric organometallic systems
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: Our group is interested in designing novel supramolecular systems that could be used for photoinduced charge transfer applications. Recently this work has expanded into polymeric systems containing our synthesized building blocks. This poster presents recent spectroscopic measurements on several subunits and polymers we have synthesized. Those measurements include absorption, emission (steady-state and time-resolved), emission polarization, and transient absorption measurements at various temperatures. Results suggest pronounced charge transfer transitions between the different subunits in the polymers, and these transitions could be used in solar cell applications.

P-49: EMMA VANDER ENDE
Implementation of Stark Spectroscopy to measure photoinduced charge transfer distances
FACULTY SPONSOR(S): KEITH WALTERS, CHEMISTRY
Abstract: The focus of this research is to use Stark spectroscopy inside a cryostat to measure charge transfer distances within molecules of interest. The initial challenge is to design a sample holder for the spectroscopy where a very high-voltage AC current can be applied to a very thin (0.1 mm) sample that is either immobilized in a polymer matrix or in a low-temperature solvent glass. The results of these measurements can be used to determine whether or not the molecules are appropriate for use as semiconductors and/or solar cells.

P-50: SUSANNA KNADLER, HILARY CLARK, PORSCHAE WILSON, ALI ROTH, RACHEL SHOCKEY, EMILY KITZMILLER
Cuisine D'Lemongello
FACULTY SPONSOR(S): GREG DE BLASIO, COMMUNICATION
Abstract: The goal of this group project is to show how to successfully plan a launch of a new product from the eyes of a Public Relations Firm. Cuisine D'Lemongello hired the public relations firm for counsel on the launching and creation of brand identity for its latest project 'Lemongello'. The launch outlined in the project places the brand identity and launches the product into the eyes of its consumers. The plan takes place in a two week time frame and with a $6,000 budget. This project showcases how to accomplish all of these feats effectively for the client.

P-51: CAMERON MCCORMICK
Product Placement in Video Games: Another Traditional Advertising Outlet or More Complete Game Immersion?
FACULTY SPONSOR(S): ZACHARY HART, COMMUNICATION
Abstract: Product placement in video games is here to stay. This project will describe the linkage between products/brands and video games. It will investigate the role that product placement in video games plays in advertising as well as how it makes games more realistic. It also will discuss video game product placement's impact on brand awareness and sales. The project will include significant video-based support that will include game footage showing and explaining different aspects of product placement.

P-52: SEAN MALLEY
Internet Addiction, Online Pornography, and Personality Traits: An Investigation of Web Use Among College Students
FACULTY SPONSOR(S): BRADFORD SCHARLOTT, COMMUNICATION
Abstract: Six hundred and twenty-two students at Northern Kentucky University took a survey in the spring of 2009 that measured aspects of their Internet use, including whether they visit Web sites that feature sexy pictures or sexy chat. The survey also determined whether the students experience dissociation while using the Internet, which can indicate addiction. In addition, the data set includes indicators of personality traits such as shyness and self-esteem, and demographic variables such as political affiliation and religious preference. A statistical analysis will reveal the links among compulsive Internet use, Web pornography, personality traits, and demographic variables.

P-53: LYNNE BAKER
Data Mining Techniques Applied to Plant Propagation Data
FACULTY SPONSOR(S): ALINA CAMPAN, COMPUTER SCIENCE
Abstract: Data mining is the process of automatically extracting previously unknown useful information from data. This research project required selection of an appropriate predictive algorithm and applying it to a cleaned set of plant propagation data to discern which, if any, variables positively influenced root formation in an in vitro environment.

P-54: BENJAMIN PFEIFER
Measuring the Accuracy of Hulu's Interactive Direct Marketing Model
FACULTY SPONSOR(S): ALINA CAMPAN, COMPUTER SCIENCE
Abstract: As the access point for media consumption shifts from conventional television to Internet streaming services, a golden opportunity for advertisers has arisen. Hulu is a video streaming site utilizing an advertisement recommendation procedure which does on-the-fly data collection with the intent to improve the ads directed towards the end user. This project involved collecting a data set of Hulu's advertising recommendations in real time and processing that data set using a variety of data mining techniques. The goal was twofold, to determine the accuracy of Hulu's advertising and to offer suggestions on how its ranking system could be approved.

P-55: THOMAS DELANEY, CHRISTOPHER TRENKAMP
Android Cloud Power Management
FACULTY SPONSOR(S): WEI HAO, COMPUTER SCIENCE
Abstract: Android Cloud Power Management (CPM) is a new design to compliment the current power management system in the Android mobile phone operating system. The CPM system will attempt to conserve battery life on mobile devices by off-loading CPU and network intensive process to the cloud. During phase 1, statistics will be measured using a power usage monitoring application. The gain from having a process operating on the cloud versus having the application run locally on the phone will be determined from these statistics. Phase 2 will entail altering the Linux kernel to automatically move unnecessary processes to the cloud when battery life falls below a specific threshold.

P-56: CHRISTOPHER TRENKAMP
A K-Means Based Database Partitioning Algorithm for Cloud Applications
FACULTY SPONSOR(S): WEI HAO, COMPUTER SCIENCE
Abstract: Cloud computing gives businesses the ability to perform dynamic resource provisioning for applications. Clouds are usually hosted at regional data centers, which could result in a long travel distance for your network traffic. To solve this problem, our solution is to cache the applications and data from the cloud onto a local proxy server. Since database access is a performance bottleneck, we utilized the K-means algorithm to develop a new approach to perform database partitioning and data selection. We cache the most frequently accessed database partitions on the local proxy. Experimental studies are performed to validate our approach.

P-57: RUBAIYAT HOSSAIN
Mining Windows Registry for Data Exfiltration Detection
FACULTY SPONSOR(S): YI HU, COMPUTER SCIENCE
Abstract: Data exfiltration activities can be identified on a Windows system by examining the registry. On Windows systems a unique identifier is created within the registry for a USB device when is plugged into the universal serial bus. By examining the Windows registry to collect artifacts left behind by USB devices and using statistical methods on the collected data exfiltration activities can be identified.

P-58: ADAM HOWARD
Detecting and Disabling Keylogger Software
FACULTY SPONSOR(S): YI HU, COMPUTER SCIENCE
Abstract: Most keyloggers are software applications that are installed onto computers with the intent of monitoring and storing keystrokes that are input by a user. They can be used by malicious users to steal confidential information. Keystrokes can either be stored on a physical hard disk or transmitted to a remote location. This research studies ways to detect and remove unknown keylogging software. Since keyloggers by nature are hidden from the user, we study the mechanisms that they use to hide themselves and communicate with malicious users. Then we propose a general process for identifying unknown keyloggers.

P-59: JAMES NEILAN, MARK HENDERSON
Probabilistic Decision Making - Ensembles of Classifiers for Gesture Recognition
FACULTY SPONSOR(S): GARY NEWELL, COMPUTER SCIENCE
Abstract: Probabilistic recognition systems have been studied for more than 3 decades as an aid to human-computer-interaction (HRI) tasks. This field has seen dramatic research interest due to the efficacy of small and highly portable mobile devices. We

present a multi-modal input recognition system that is capable of combining various weaker gesture recognition algorithms in order to allow for more robust, accurate, and efficient recognition solutions in multiple recognition domains. We explore the use of Bayesian probability theory, ensemble fusion methods, and machine learning approaches over a hand drawn alphanumeric dataset.

P-60: AVA GAILLIOT, DONALD HYDEN, RYAN LIETZENMAYER
Knowledge Elicitation Study for a Speech Enabled GIS to Handle Uncertainties in Human-Computer Communication
FACULTY SPONSOR(S): HONGMEI WANG, COMPUTER SCIENCE
Abstract: Existing speech enabled Geographical Information Systems (GIS) do not support the end-user well because the human-computer communication is often broken down due to the uncertain nature of natural language. To design a usable speech enabled GIS, we need to develop an appropriate knowledge base for the system to know how to handle various uncertainty problems in communication effectively. The goal of the project is to collect knowledge about how humans work together to solve various uncertainty problems in speech communication while using GIS. Toward this goal, a knowledge elicitation study was designed and conducted in the summer. At first, we observed how expert GIS operators and non-expert end-users handled uncertainty problems through collaborative dialogues when the non-expert end-users' speech GIS requests were not perfect to the GIS operators. After the observation both participants were interviewed to elicit more collaborative strategies and to better understand the GIS operators' reasoning processes. The knowledge that we collected from their communication will become the foundation for an intelligent knowledge base that will help with development of a user friendly speech enabled GIS.

P-61: ANDREW BOEHRINGER
Palm Oil: Conquest of the Rainforest and Beyond
FACULTY SPONSOR(S): JONATHON REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: The cultivation of oil palms in combination with yams, in West Africa by Bantu speaking peoples allowed them to expand their population into the rainforest. This calorie rich crop has influenced cooking techniques both in West Africa and globally. While it is still used as cooking oil today, scientists are continuing to find new ways to use this crop in other ways, such as bio-fuel.

P-62: ARIELLE FERRE
Cheese
FACULTY SPONSOR(S): JOHNATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: This project will include the process of creating cheese and the different variations of cheeses and how to make them different. It will also include some ways that the dairy product has affected cultures in history.

P-63: CANDICE GOTT
Garlic in World History
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Garlic is a modern day staple of American cuisine, and many other cuisines as well. From its origination in Central Asia, it has been more than just an ingredient, but a component of culture. Its evolution and spread across the world have made garlic a major player in the development of world history. Today, garlic can be found in dishes all around the world, from Italian to American, Mexican to Chinese, it's a nearly inescapable ingredient. Garlic is available in many forms, and plays a major role in food and culture around the world.

P-64: HANNAH HILLGER
Coffee: Discovery to Present Time
FACULTY SPONSOR(S): JONATHON REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Java, java, java…many cannot imagine a day without a morning cup of coffee. Yet, at one point coffee did not exist. Legends speak of dancing goats with their bellies full of coffee beans – an intriguing story, but likely untrue. Where did coffee begin? How is coffee made? How did coffee become what it is today? This presentation will focus on answering these questions, among many others.

P-65: BRITT MAHAN
Cinnamon's Story
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Cinnamon is one of the world's most common spices. It has been in our lives, and those of others worldwide for centuries. Its uses vary from cooking to aroma, and its forms range from sticks to powder. Human beings and cinnamon have a long and interesting past, as the audience will learn from Cinnamon's Story.

P-66: KATHRYN MILLER
Cocoa: The Semi-Sweet History and Role of Chocolate in the World
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: My project will explore the history and origin of cocoa, as well as the environment required for the plant to grow. Also discussed will be the ecological and economic effects of cocoa in the world, and the social component of the ingredient in various societies today. Cocoa is one of the top-selling commodities in the world, and therefore has a rich role in today's society.

P-67: SARAH PITTS
Banana Background Breakdown
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: I will be studying the history of the banana. My presentation will address where bananas come from, what it was first used for, how it was discovered, how bananas are harvested, what countries they are used in the most, how and where they are grown, their economic status, and their health benefits.

P-68: ELIZABETH RUWE
Cherries in World History
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: For the Celebration of Undergraduate Research, my presentations focuses on the history of and impact of cherries in world history. I will begin with the first cultivation of cherries in 300 B.C and then continue with their place among the ancient Greek, Roman, and Chinese civilizations. I will relate how cherries were brought to America in the 1600s and spread by the French throughout the Great Lakes region. I will finally cover the production of cherries in modern times and ways in which cherry production has impacted societies throughout history.

P-69: ABBEY SCHERER
Potatoes in World History
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Because of the extended nutritional value potatoes have, their wide use as a staple food for families and countries alike, and my unending love for them, my research focuses on potatoes in world history. Potatoes have sustained colonies in times of great need, but they have also been the cause of much loss for whole countries. I will delve deeper into the good and bad of the potato in history and its nutritional facts, along with describing just how many different kinds of foods can be made with a simple potato in it's various forms.

P-70: DURAN SHEETS
SALT in World History
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: This project will explain the the significance of salt in world history. Wars have been fought over salt. People were paid in salt. Locally, Big Bone Lick (salt lick) was a destination for animals, native Americans, and the American settlers. People learned that salt preserved food for traveling; for instance, salt-beef was used by the British Navy and Napolean's army. Thus, salt has also led to significant geo-political events in history. A healthy balance of salt is also required for the human body to function. There are compounds called salts; however, this project will concentrate on what we call common table salt, NaCl.

P-71: MATTHEW STARK
The Origin, History, and Impact of the Ice Cream Legacy
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Ice cream has won the hearts of many generations ever since the days of the Roman Empire and possibly the Persian Empire. The history of the ice cream legacy can be definitively traced back to Emperor Nero of the Roman Empire. However, the origin of its first creation is still controversial. This project discusses some of the debated origins of ice cream, its impact on society, and the processes of how it is made today.

P-72: MARY VON LEHMAN
The History of Garlic
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: For thousands of years, garlic has had a huge impact on the development of food and flavor as well as some medicinal practices. Originating in Central Asia, it has steadily made its way across the globe—becoming a part of nearly every major cuisine. It has also been referenced from early times into the modern day as a healing and uplifting aspect of one's diet. With garlic's ease of cultivation, many varieties, and unlimited culinary uses, its grasp upon cultures and tradition across the world will not subside.

P-73: BRITTANY WALLACE
Betty Crocker and the Modern World
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: Betty Crocker has changed the way that the essence of cooking is seen as well as gender roles in our modern society of the United States, and social concepts of a family meal has also been transformed.

P-74: SHANE WINSLOW
Seeds of Life: The Influence of the Sesame Seed
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: This presentation regards the cultural, health benefits, history, and modern usage of the sesame seed. This presentation seeks not only to illustrate the role that the sesame seed played within Southwest Asia, but also its position on the world-wide stage.

P-75: STEPHANIE ZACH
The Conquest of Curds and Whey
FACULTY SPONSOR(S): JONATHAN REYNOLDS, HISTORY AND GEOGRAPHY
Abstract: This project will detail what cheese is and its significance to us in a cultural sense. It will begin with origin: Where it was made, and who first made it; how, and why the advent of cheese was advantageous to the people that created it. It will then address the development and refinement of the process of cheese-making around the world. Also explored will be the mutual relationship between the effects of cheese and developmental processes on each other, such as the connections between cheese and culture, economics, and ideology, as it spreads in popularity around the globe.

P-76: JASMINE HENDERSON, ANAKAREN ROSAS
The Double Consciousness of the American Negro
FACULTY SPONSOR(S): MICHAEL WASHINGTON, HISTORY AND GEOGRAPHY
Abstract: The project is an effort to depict the dual race/cultural consciousness of African Americans of Negro slave heritage. The exhibit includes images of the greatness of African traditions on one side and on the other side are the images of oppression associated with the Negro's racial identity. In the center stands the image of the American Negro suffering from the inherent conflict of the two warring souls.

P-77: KATHERINE BACHMAN
Coalescent Models of Genetic Diversity in Rare Species
FACULTY SPONSOR(S): KENNETH OSWALD, HONORS
Abstract: While studying rare species, it is often difficult to collect a sufficient number of individuals to make broader inferences about the diversity of the entire population. Coalescent analyses estimate several genetic diversity measures, but it is unknown how robust the coalescent is when only a few individuals have been sampled. This study uses coalescent simulations to model genetic diversity of rare species in an attempt to establish a relationship between sample diversity and population diversity. Models account for DNA sequence variation at both the mitochondrial and nuclear genomes.

P-78: EMILY SPINKS
Evolutionary Conservation Genetics of Tonguetied Minnow (Exoglossum laurae) and Ecology of Native Watersheds in Ohio
FACULTY SPONSOR(S): KENNETH OSWALD, HONORS;
Abstract: Comparisons of recent versus historic collection records for tonguetied minnow (Exoglossum laurae) reveal diminishing abundance concurrent with shrinking geographic distribution. To assist with conservation plans, we have estimated genetic diversity and select ecological parameters of tonguetied minnow. Analyses of mitochondrial and nuclear DNA sequence variation indicate that Great Miami River and New River populations are evolutionarily distinct. Analyses of ecological parameters suggest that decreases in mean water clarity as well as increases in mean water temperature are correlated with declines observed throughout Ohio. Finally, we offer management recommendations based on study results.

P-79: KATELYN CRAVENOR, ALISA HAUSCHILD, SASHA DAVIS, SARAH MANHARDT
An Innovative Approach to Improving Functional Flexibility in Older Adults
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: The Senior Fitness Test (SFT) is used by the Campbell County Senior Center to assess functional capacity in older adults. The SFT includes assessments for aerobic endurance, strength, flexibility, and dynamic balance. The SFT uses norms (age and gender stratified) to identify an individual's category: above average, normal, below average, at risk. This project will develop an innovative training program, utilizing cutting edge technology, to improve functional flexibility in older adults. Funding: College of Education and Human Services Grant

P-80: SASHA DAVIS, ALISA HAUSCHILD, KATELYN CRAVENOR, SARAH MANHARDT, RENEE JEFFREYS
An Innovative Approach to Improving Aerobic Endurance in Older Adults
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: Background: The Senior Fitness Test (SFT) is used by the Campbell County Senior Center to assess functional capacity in older adults. The SFT includes assessments for aerobic endurance, strength, flexibility, and dynamic balance. The SFT uses norms (age and gender stratified) to identify an individual's category: above average, normal, below average, at risk. This project will develop a innovative training program, utilizing cutting edge technology, to improve future scores in the area of aerobic endurance. Funding: College of Education and Human Services Grant

P-81: ALISA HAUSCHILD, SASHA DAVIS, KATELYN CRAVENOR, SARAH MANHARDT
An Innovative Approach to Improving Strength in Older Adults
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: The Senior Fitness Test (SFT) is used by the Campbell County Senior Center to assess functional capacity in older adults. The SFT includes assessments for aerobic endurance, strength, flexibility, and dynamic balance. The SFT uses norms (age and gender stratified) to identify an individual's category: above average, normal, below average, at risk. This project will develop an innovative training program, utilizing cutting edge technology, to improve future scores in the area of muscle strength. Funding: College of Education and Human Services Grant

P-82: DONNIE POORE, JACOB CURTIS, BETHY JASPERS, BRIAN GISH, SARAH MANDHARDT
A Novel Approach to Delivering Wellness Programming to Seniors
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: Technology use among older populations is not consistent. This study will assess the benefits of delivering Wellness content electronically on computers and iPads. Six presentations, each addressing a component of Wellness, were developed using PowerPoint presentations and imbedded videos. Over 5 weeks, members of the Campbell County Senior Center watched the videos and answered a short survey. Analysis of the survey results, to be included in the poster, will increase our understanding of the usefulness of these platforms in delivering Wellness interventions in a Senior populations. Funding: College of Education and Human Services Grant.

P-83: ANNAROSE SCHNEIDER, NATALIE SANDHAS, BRIANNA SINGER, SARAH MANHARDT
Identifying At Risk Individuals Based on the Senior Fitness Test and Determining Associations Among Assessment Scores
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: The Senior Fitness Test (SFT) is used by the Campbell County Senior Center to assess functional capacity in older adults. It includes assessments for aerobic endurance, strength, flexibility, and dynamic balance. The SFT uses norms (age and gender stratified) to identify an individual's category: above average, normal, below average, at risk. The goal of this analysis is to, 1) determine what percentage of the sample population falls into each category; 2) determine if there are associations between assessment scores. The results will determine "at risk" areas so targeted interventions can be developed. Funding: College of Education and Human Services Grant.

P-84: BRIANNA SINGER, NATALIE SANDHAS, ANNAROSE SCHNEIDER, SARAH MANHARDT
Longitudinal Assessment of Functional Fitness using the Senior Fitness Tests (SFT) at the Campbell County Senior Center
FACULTY SPONSOR(S): RENEE JEFFREYS, KINESIOLOGY AND HEALTH;
GARY EIPPERT, KINESIOLOGY AND HEALTH
Abstract: The Senior Fitness Test (SFT) is used by the Campbell County Senior Center to assess functional capacity in older adults. It includes assessments for aerobic endurance, strength, flexibility, and dynamic balance. The SFT uses norms (age and gender stratified) to identify an individual's category: above average, normal, below average, at risk. The goal of this analysis is determine 1) how the scores change over time and to 2) assess intra-individual changes on the subset of individuals with serial measurements. Funding: College of Education and Human Services Grant.

P-85: EMILY COOPER
Examination of Title IX and the Proportionality Test
FACULTY SPONSOR(S): ALAR LIPPING, KINESIOLOGY AND HEALTH
Abstract: The 40th anniversary of Title IX will take place on June 23, 2012. The purpose of this study was to examine the proportionality gap of Division I institutions of higher education. Data was collected on the conferences that were represented during the 2011 men's basketball tournament (March madness). Each school within their conference was analyzed for the following: percentage of male and female students at each school; percentage of male and female student athletes at each school; and, based on this data a proportionality gap score was calculated. These data will be used to contrast with a comprehensive four year study of 1,895 higher education institutions that was conducted during the period of 2001-02 to 2004-05. The conclusion will deal with trends that have occurred in the proportionality gap during the past seven years.

P-86: DANIEL BOEHMKER
The Effectiveness of Knee Savers in Functional Activity in Collegiate Baseball Catchers
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: Knee-Savers are foam wedges that are placed on the back of a catcher's shin guards to provide cushion and stability to the knee joint while in the catching position. The manufacturer claims that this product is used to prevent knee pain and possible wearing down of the knee, however there is no published research to back these claims. The purpose of this study is to examine the effectiveness of Knee-Savers on a timed pop-up test and a long sit test in experienced college baseball catchers.

P-87: ANDREW HESTER
A Comparison of Two Methods to Increase Hip Internal Rotation
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: Massage therapy has been used for centuries to relieve tension and pain in muscles as well as increase the range of motion of the joints. A new technique emerging in therapeutic rehabilitation is Functional Manual Reaction. This system incorporates therapist assisted movement while the patient is standing or moving in a directed pattern. Although there is no research to back this system, therapists have reported noticeable increases in range of motion after employing these strategies. The purpose of this study is to compare the effects of massage therapy and Functional Manual Reaction techniques on internal rotation of the hips.

P-88: AUSTIN JACOBS
Effect On 100m Sprint Times with the Intervention of Pre-Heating and Pre-Cooling
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: Pre-cooling and pre-heating have been studied to determine if there is an improvement in running distance and a decrease in timed runs. Studies have been completed that have shown these improvements during 20 to 30 minutes run trials and long distance trials. There have only been a few studies that have tested short distances and sprinting with these pre-exercise temperatures before trials. The purpose of this study is to see if there is any improvement in times of subjects sprinting 100 meters with pre-heating and pre-cooling techniques compared to no intervention before sprinting.

P-89: SARAH LOHSE
The Effects of Hockey Fighting on ImPACT Scores of Professional Hockey Player With No Diagnosed Concussion
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: The purpose of this study is to gain a better understanding of how hockey fighting effects the ImPACT scores of a professional hockey player with no reported or diagnosed concussion in the current season. Recently, hockey fighting has been scrutinized for being very dangerous and there is a push to make it illegal to fight. This study will compare the preseason ImPACT scores and the current scores of a professional hockey player who has no head impacts and a player who is the team's enforcer to see if there is a significant difference.

P-90: MICHELLE MILLER
Effects of Low Top and High Top shoes on Ankle Stability
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: In many sports the right type of shoes can affect performance based on traction, stability, and appeal for the athlete. Shoes are designed to look good and aid in performance, however, it is not clear the impact that different shoe types have on stability. Several authors have analyzed stability in subjects with low and high top shoes, however their focus was on ankle inversion rather than overall ankle stability. Therefore, the purpose of his study is to determine if there is a significant difference in ankle stability while barefoot, in low top shoes, and in high top shoes.

P-91: JUSTIN PETTIT
The Effects of Unilateral vs. Bilateral Strengthening on Single Leg Jump
FACULTY SPONSOR(S): RACHELE VOGELPOHL, KINESIOLOGY AND HEALTH
Abstract: Lower extremity strengthening for return to sport participation is a vital component in the rehabilitation process. The manner in which this strengthening occurs is currently being debated in the literature. Therefore, the purpose of this study is to determine which jumping exercise program (plyometric protocol) is more beneficial in producing the best improvements in single leg strength. The study will look at training a single leg only versus the training of both legs, to determine if there are differences between the two methods.

P-92: ANTHONY BANKEMPER
Binary Disruption in Embedded Clusters
FACULTY SPONSOR(S): LISA HOLDEN, MATHEMATICS AND STATISTICS
Abstract: The purpose of this talk is to explore via numerical simulations the possible disruption of binary stars by the most massive stellar member of an embedded cluster. It appears that most stars within our galaxy are born in dense clusters, but over time, a significant fraction leave these environments to become field stars. In addition, about 70% of stars within our galaxy are in binary systems, but it is still unknown whether or not all stars are born in binaries. If so, then a significant fraction of young binary systems must be disrupted within the cluster environment before escaping.

P-93: JOEL GIFFORD
Leaf Identification via Mathematica
FACULTY SPONSOR(S): DON KRUG, MATHEMATICS AND STATISTICS
Abstract: Using a database of digital photos of known leaves we will take digital photos of different types of leaves and using Mathematica to compare them to the known leaves to see if we can identify the type of leaf it is.

P-94: TARAH COLE
Assessment of Risk Factors for Truancy of Children in Grades K-12 Using Survival Analysis
FACULTY SPONSOR(S): JOSEPH NOLAN, MATHEMATICS AND STATISTICS
Abstract: Survival Analysis is a time-to-event statistical analysis commonly used to assess risk of particular events based on available predictors. This presentation provides a brief overview of survival analysis, primarily focusing on the methodologies and results from a study conducted to evaluate risk factors pertaining to truancy using data obtained from a large Kentucky school district.

P-95: JUSTIN TAYLOR
Computer-Based Interactive Mathematics
FACULTY SPONSOR(S): MICHAEL WATERS, MATHEMATICS AND STATISTICS
Abstract: The purpose of this summer project was to create for distribution a collection of computer-based interactive mathematics tools to be used by instructors and students to better understand difficult concepts in calculus. Using the software platform MATHEMATICA, several unique, interactive figures were created and are showcased in this poster presentation. The actual figures are presented on a computer for viewers to sample.

P-96: ZACHARIAH CASEY
Darboux Springs
FACULTY SPONSOR(S): STEVEN WILKINSON, MATHEMATICS AND STATISTICS
Abstract: Darboux Helices are space curves that have constant non-zero Darboux curvature and torsion. We found that the curves are always bounded and lie on a hyperboloid but are only closed when the constant non-zero curvature and torsion are two of a Pythagorean triple. This poster shows various examples of what a Darboux Helix would look like.

P-97: NATASHA PENCE, RACHEL ROYER
Enhancing Lives and Enriching Learning through Kindermusik: A Community Outreach Project
FACULTY SPONSOR(S): DIANA BELLAND, MUSIC
Abstract: Research supports the idea that exposing children to music at a young age has a profound effect on a child's overall development, including socialization, spatial-temporal reasoning, and reading skills. In 2011, Dr. Diana Belland, Natasha Pence, and Rachel Royer utilized SURCA and CFSPG awards to allow Pence and Royer to receive training in Kindermusik, an award-winning early childhood movement and music program, and to bring Kindermusik to children in need of quality music education. Belland, Pence and Royer then formed a partnership with local United Way organization Children, Inc. to establish these classes within their network of preschools in Northern Kentucky.

P-98: MARTIN BARKER, TRISTAN WOLFE
Two Men, One Week, 21 Meals in Mexico City!
FACULTY SPONSOR(S): LYNN SMITH, NURSING
Abstract: Mexico City's food has been influenced by the ancient Aztec cultures, the Spanish, as well as the culture of today. The convergence of these cultures has impacted Mexico City to create the unique cuisine we see now. Through our week long immersion through one of Northern Kentucky University's Alternative Spring Break Programs, we will attest to how the food has been influenced over time, by direct experience (taste-testing!) and documenting our findings photographically and in writing.

P-99: TREVOR ROWE, STACY HORN, PATRICIA PERKINS
Modern Tech Finding Historic Sites
FACULTY SPONSOR(S): THOMAS BRACKMAN, PHYSICS AND GEOLOGY
Abstract: Geophysical methods of investigation were initially developed for the study of subsurface geological features. In recent years they have become for the detection of archaeological features (Conyers, 2004). The increasing availability of commercial equipment amplified the quality and quantity of data collected and the more intensive usage by archaeologists resulted in theoretical and methodological advancements. We used ground-penetrating radar equipment, its theory, and uses associated with archaeology to collect and interpret data collected at the historic site of Hill Forrest Museum in Aurora, Indiana. We surveyed an area where a privy once stood but was destroyed in a fire. The exact location of the privy was unknown. We used the ground-penetrating radar to help locate the foundation of the privy.

P-100: NATHAN ROGERS, EIKE LOHRBACH, TYLER SPAETH, DANIEL WALTERS, HANS LENTZ, NICK BERTKE
Norse Baja SAE Buggy
FACULTY SPONSOR(S): MORTEZA SADAT-HOSSIENY, PHYSICS AND GEOLOGY; BRIAN WARNER, ENGINEERING TECHNOLOGY
Abstract: The Society of Automotive Engineers (SAE) is a professional organization for students interested in the automotive field. Skills learned in the classroom meet real-world applications through SAE's collegiate design competitions, where students get the hands-on experience prized by motorsport teams, automotive and aerospace manufacturers and suppliers. Designed and built by Norse Baja, NKU's vehicle will compete in the 2012 SAE international competition in June.

P-101: SHARON CRISS
Ethical Challenges of Leadership
FACULTY SPONSOR(S): ALISON ANTES, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: Ethics is the heart of leadership because ethical beliefs, decisions, and behavior shape how leaders influence others. When individuals take on leadership roles, they assume benefits but also ethical burdens. This study will examine college students' understanding of the ethical challenges of leadership prior to taking an ethics course. Responses to open-ended questions regarding ethical challenges will be content analyzed and compared to current literature on the central ethical challenges of leadership. The findings will provide implications for future ethics research and education by revealing a comprehensive list of ethical challenges, as well as insight into college students' awareness of these challenges.

P-102: ANNIE PARKS
Stress Management in Work and Life
FACULTY SPONSOR(S): ALISON ANTES, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: Stress management is a critical skill especially in today's fast-faced professional work environments. This study will utilize surveys to examine stress levels in college students prior to entering a seminar about stress management. Following the seminar, stress will be re-examined, along with the students' learning and reactions to the stress management material provided in the seminar. The findings will provide evidence for college students' stress levels, stress management knowledge and skills. The study will conclude with implications for preparing college students for stress management in work and life.

P-103: JESSALYNN BEAUCHAM
Exploring The Relationship Between a Leader's Religion and Ethical Decision Making
FACULTY SPONSOR(S): WHITNEY MCINTYRE MILLER, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: This study will examine whether an organizational leader's religious practices positively or negatively affect their ethical decisions. Many leaders can use their religious values to create a positive organizational climate that encourages ethical behavior. On the other hand, leaders can also abuse the spirituality of their employees and create a hostile work environment. This poster will present research about different leaders and how their religions may affect their ethical behavior in their organizations and culture.

P-104: KATELYN HAYES
Representations of the LGBT Community and Their Effect on LGBT Youth
FACULTY SPONSOR(S): SHAUNA REILLY, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: Popular culture plays a profound role in the construction of a population's ideas and beliefs about a variety of groups, impacting the way that members of these communities view themselves. This has held true for the LGBT community, particularly in recent years. This study examines several prominent examples throughout popular culture in order to determine how the LGBT community is portrayed and how that portrayal affects youths' perception of the community and LGBT youth themselves.

P-105: TARA MAINE
Gender and Environmental Attitudes
FACULTY SPONSOR(S): SHAUNA REILLY, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: When looking at the future of politics and law-making, there is a global concern for the environment and the effect humans have upon it. We accept the inevitable and begin to take precaution regarding the future. However, such precautions would presumably bring favorable attitudes towards the environment are often encouraged through the media but rarely come directly from the political arena. This poster will look at the effects that gender has on environmental attitudes and how that is translated into representation.

P-106: REBECCA SUTTMILLER, DENISE HICKSON, SARA BAMBERGER
Procedures to Enhance the Quality of Latent Fingerprints Developed by Cyanoacrylate Fuming
FACULTY SPONSOR(S): JILL SHELLEY, POLITICAL SCIENCE AND CRIMINAL JUSTICE
Abstract: Next to DNA, fingerprints are the most important piece of evidence used to aid in convictions. Cyanoacrylate fuming (super glue fuming) is the chemical process of visualizing latent fingerprints that might be on non-porous surfaces. The superglue fumes bond with organic components and moisture of the fingerprint. The purpose was to observe three main factors that can be controlled in the fuming processing: fuming time duration, humidity inside the fuming tank and optimum concentration of cyanoacrylate for ideal prints results. The amount of time the item is fumed is affected by the substrate of the article, fume concentration and humidity.

P-107: MATT GANNON, RACHEL STEVENS, MOLLY GRIFFITH
Early-Life Risperidone Treatment Alters Maternal-Offspring Interactions
FACULTY SPONSOR(S): MARK BARDGETT, PSYCHOLOGICAL SCIENCE
Abstract: This study examined the effects of early-life antipsychotic drug treatment on maternal-offspring interactions in rats. Rats treated with the antipsychotic drug, risperidone, from postnatal days 14 – 21 interacted significantly less with their mothers when observed one hour after treatment. Drug-related changes in nursing were also noted at 23 hours post-treatment.

P-108: JENNIFER ROSS, BARNETT BRITTANY, RACHEL STEVENS, MATT GANNON, MOLLY GRIFFITH
The Long-term Effects of Antipsychotic Drug Treatment |in Rats after Treatment Discontinuation Back to Normal or a New Normal?
FACULTY SPONSOR(S): MARK BARDGETT, PSYCHOLOGICAL SCIENCE
Abstract: Our research used rats to determine if behavioral changes occur after discontinuation of prolonged antipsychotic drug (APD) treatment. Specifically, this study examined locomotor activity on a weekly basis for several weeks after the cessation of a five-week regimen of daily risperidone administration. During drug administration, risperidone significantly decreased activity at one hour after treatment. An assessment performed once a week at 23 hours post-treatment indicated that the risperidone-treated rats were more active across all treatment weeks. At seven and 14 days after treatment discontinuation, risperidone-treated animals remained hyperactive; thereafter, activity was similar between treated and control rats.

P-109: RACHEL STEVENS, MATT GANNON, MOLLY GRIFFITH
Risperidone Treatment Alters Locomotor Activity in Developing Rats.
FACULTY SPONSOR(S): MARK BARDGETT, PSYCHOLOGICAL SCIENCE
Abstract: This study examined immediate and delayed locomotor responses in young rats to chronic daily treatment with the antipsychotic drug, risperidone. Risperidone was associated with profound suppression of locomotor activity immediately post-treatment, but as daily treatment progressed across weeks, hyperactivity increased at 23 hours post-treatment.

P-110: SUSAN GEIGER
Effectiveness of the Choose to Lose Program
FACULTY SPONSOR(S): KIMBERLY BREITENBECHER, PSYCHOLOGICAL SCIENCE
Abstract: The purpose of this investigation was to evaluate the effectiveness of the Choose to Lose program. The Choose to Lose Program is a comprehensive 8-week weight loss program, focusing on healthy eating practices, increasing physical activity, improving sleep habits, preventing emotional over-eating and managing stress in healthy ways. This class is sponsored by the NKU Wellness Center and facilitated by Health Coach Linda Hoffsis. The program was offered to NKU employees during fall semester, 2011. Seventeen employees completed biometric measurements before and after program participation. Results indicate that program participants achieved a significant reduction in weight and waist circumference.

P-111: JANUARY SHIELDS
The Effect of Participation in the Monday Mile on Well-being
FACULTY SPONSOR(S): KIMBERLY BREITENBECHER, PSYCHOLOGICAL SCIENCE; KIMBERLY BAKER, WELLNESS CENTER
Abstract: The purpose of the present investigation was to evaluate the effect of participation in a 30-minute, outdoor walk on participants' perceptions of well-being. During Fall 2011, the NKU Wellness Center sponsored an activity called the Monday Mile. The Monday Mile was a 30-minute walk, led by Employee Wellness Manager Kim Baker, around the NKU campus. Individuals who reported for the Monday Mile were invited to participate in an associated research project. Interested walkers subsequently completed anonymous, online surveys assessing self-reported energy, mood, and stress levels before and after participating in three Monday Mile walks. Results will be presented.

P-112: EMILY MARSHALL
Resiliency among adolescents with parents in the criminal justice system
FACULTY SPONSOR(S): GLORIA CARPENTER, PSYCHOLOGICAL SCIENCE
Abstract: Adolescents with parents in the criminal justice system are typically an invisible, unidentified population. This project discusses specific adolescent characteristics considered to be risk or protective factors among adolescents with parents on probation or parole. The goal of this pilot study is to examine the convergence between items on the Youth Self Report and the Resiliency Scales for Children and Adolescents. Participants are currently being recruited in Northern Kentucky, including the Northern Kentucky Youth Development Center. Due to the restricted population being studied, the presentation will also address recruitment efforts and other challenges of the data collection process.

P-113: RACHEL STEVENS
Texting while Driving in College Students: What's Love Got to Do with It?
FACULTY SPONSOR(S): DAVID HOGAN, PSYCHOLOGICAL SCIENCE
Abstract: Our research shows that texting while driving (a) is a form of health and safety risk-taking behavior like smoking or driving while intoxicated; (b) is perceived as relatively safe; (c) usually involves communicating with a significant other; and (d) can sometimes cause a vehicular accident or near-accident. We will report a causal model showing how risk taking, risk perception, and the urge to communicate with a significant other sequentially determine the likelihood of an accident or near accident while texting.

P-114: WILLIAM RIES, ASHLEY WORMLEY, RYAN DOOLEY
What Do NKU Students Think? It Depends How You Ask! An Experiment on Survey Questions
FACULTY SPONSOR(S): ANGELA LIPSITZ, PSYCHOLOGICAL SCIENCE
Abstract: Survey responses can be greatly affected by how a question is asked. We gave 110 students enrolled in Introductory Psychology one of two versions of a survey on campus and national issues. For some items, we varied the wording of the question; for others, we varied the response options given. We found significant differences for most items.

P-115: AMY HENGES, CLIFFORD BROWN, SARAH MALONEY, ADRIENNE DAUGHERTY, AMBER GUZMAN, MICHAEL STATHAM
Acute Effects of a Glucose Energy drink on Information Processing and Subjective Ratings of Stimulation
FACULTY SPONSOR(S): CECILE MARCZINSKI, PSYCHOLOGICAL SCIENCE
Abstract: This study examined the effects of a glucose energy drink on an information processing task and on subjective measures of stimulation and mental fatigue. Participants were randomly assigned to one of six dose conditions, and completed tasks both at baseline and 30 minutes after dose administration. The results indicated that the energy drink increased feelings of stimulation and decreased feelings of mental fatigue in a dose-dependent fashion; and had no impact on information processing rates. This suggests an energy drink may only benefit the subjective feeling state of the consumer, but has no impact on actual cognitive processing.

P-116: AMY HENGES, ADRIENNE DAUGHERTY, CLIFFORD BROWN, SARAH MALONEY, JOHORA PAEDA, HEATHER ELSTUN, ELYSE ADAMS
Acute Effects of a Glucose Energy Drink on a Category and Letter Fluency Test
FACULTY SPONSOR(S): CECILE MARCZINSKI, PSYCHOLOGICAL SCIENCE
Abstract: We investigated the effects of a glucose energy drink on a category and letter fluency test and on subjective measures of mental fatigue and stimulation. Verbal fluency tasks consist of generating words from a semantic category (e.g. animals) or from words beginning with a specific given letter (e.g. the letter A), within a 60 second time limit. While this study is still in progress, we have 36 subjects who have completed the study and are adding more subjects. The current findings suggest an energy drink's effects may be limited to altering the consumer's subjective state of mood.

P-117: AMY HENGES, SARAH MALONEY, ADRIENNE DAUGHERTY, CLIFFORD BROWN, JOHORA PAEDA, HEATHER ELSTUN, ELYSE ADAMS
Cognitive and Subjective Time Course Effects of a Glucose Energy Drink
FACULTY SPONSOR(S): CECILE MARCZINSKI, PSYCHOLOGICAL SCIENCE
Abstract: This study examined cognitive and motor performance and self-reports of current state of mood in those who consume a glucose energy drink, a sucrose sweetened decaffeinated beverage, or a diet beverage over an extended time period. Participants completed a behavioral control task, a motor task, and subjective measures of stimulation and mental fatigue both before and at particular intervals after receiving a beverage. This study is still in progress. We are interested in observing if performance is maintained under the energy drink condition, as well as under the sucrose-sweetened beverage condition compared to the diet beverage condition.

P-118: AMY HENGES
Effects of Diet Alcohol Cocktails on Blood Alcohol Concentrations
FACULTY SPONSOR(S): CECILE MARCZINSKI, PSYCHOLOGICAL SCIENCE
Abstract: This study examined if the consumption of alcohol mixed with a diet beverage differs from when alcohol is mixed with a sucrose sweetened beverage, primarily on blood alcohol concentration (BAC). Subjects attended three sessions where they received one of three doses in random order (alcohol mixed with a diet beverage, alcohol mixed with a sucrose sweetened beverage, or a placebo). The results indicate that BACs were significantly higher when subjects consumed alcohol mixed with a diet beverage compared to when alcohol was mixed with a sucrose sweetened beverage. We are collecting additional data to examine gender differences.

P-119: RYAN MEYER, PHILIP MOBERG
Priming Ethics: Utilizing Technology to Prime Ethical Norms and Deter Counterproductive Work Behaviors
FACULTY SPONSOR(S): PHILIP MOBERG, PSYCHOLOGICAL SCIENCE
Abstract: Research has suggested that providing cues (i.e., priming) can increase ethical behavior (e.g., Mazar, Amir, and Ariely, 2008; Randolph-Seng and Nielsen, 2007). It is unclear if this method may have practical value for organizations attempting to reduce unethical behavior. Using a multivariate analysis of covariance (MANCOVA) approach, the present study compared the effects of priming mode (i.e., printed vs. computer) and message source credibility level (i.e., high vs. low) on three types of unethical work behavior, lying, cheating, and stealing. Results indicated that printed mode significantly impacted lying and cheating, whereas any mode and source credibility combination decreased theft.

P-120: ROBERT ROZELLE, GAIL CENGIA, BRIAN WALTERS, JUDY JOHNSON
Development and Validation of a Social Support Preference Scale
FACULTY SPONSOR(S): PHILIP MOBERG, PSYCHOLOGICAL SCIENCE
Abstract: The present study describes the development and validation of an Organizational Stress Support Seeking Scale (O4S), which is intended to assess preference for sources of social support (i.e., supervisor, coworker, friend, family, and spiritual) sought in stressful organizational settings.

P-121: WHITNEY JACKSON
Reducing Recidivsm Amongst Violent Offenders
FACULTY SPONSOR(S): VANESSA HUNN, SOCIAL WORK,
Abstract: The Second Chance Act is responsible for such programs as the Reentry Initiative. This Act addresses the social problem of recidivism amongst violent offenders. Once the Act was signed, offender's ability to integrate successfully back into the community became a social issue as well. The Reentry Initiative addresses juvenile as well as adult serious offenders who pose as high-risk offenders. The initiative expresses the significance of preparing offenders for successful integration back into society after

serving a period in a state training, school, a juvenile or adult correctional facility, or any other facility that is secure.

P-122: MICHELLE KROGER
Food Advertising in the United States: The Contradictions of Healthy Living in Society
FACULTY SPONSOR(S): BARBARA ARRIGHI, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: In the last few decades, the American public has experienced an increasing public health crisis. Obesity is at an all time high, a leading cause of common medical diseases such as diabetes and heart disease. The federal government, health experts, employers, insurance companies, the current First Lady, and even television shows have issued multiple campaigns promoting healthy diets and lifestyles. Yet, obesity is on the rise. Why the contradiction between the calls for healthier eating habits and the resistance of the public? What role might food advertisements play? This study examines the contradictions between advertising and healthy living.

P-123: JOSHUA MCCORMICK
Holley Grove, West Virginia and the Paint Creek Mine War
FACULTY SPONSOR(S): JEANNINE KREINBRINK, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: Further research indicates the historical significance of Holly Grove, West Virginia in regards to the Paint Creek - Cabin Creek Mine War of 1912-1913, including the appearance of notable figures and several acts of violence involving both sides of the dispute. This project Includes oral histories of three individuals that lived on the property in Holley Grove and who helped acquire knowledge of the area.

P-124: KELLY HILDERBRAND
European Aging Issues, Policies and Economic Development
FACULTY SPONSOR(S): BONI LI, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: When a country is defined as aging, this is most likely the result of low birth rate, low mortality rate and high life expectancy. Spain's elderly people are estimated to be 17%, with Portugal's elderly being slightly higher with 18%. Both countries have high life expectancies with being 80 years old. Both countries have a low birth rates with 1.5 children per woman. It is ideal that people are living longer healthier lives than ever before, but recent economic difficulties in these countries have raised the requirement of policy reformation and extra support and care for the elderly population.

P-125: LAURA VEETY
Asia-Aging Population Issues and Policies
FACULTY SPONSOR(S): BONI LI, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: Many nations are beginning to experience the effects of an aging population, which is an increasingly important topic for research and discussion. This presentation will focus on Asia, the world's largest and most populous continent. There are many issues concerning the growing population of elderly, such as family and institutional care, pension and other financial support, work after retirement, along with many other issues. This project will discuss four Asian countries: China, Japan, Thailand and Singapore. It will introduce the existing issues encountering the elderly population in Asia and also suggest aging policies.

P-126: SARAH DOMHOFF
Inclusion: a look at societal integration among refugees from protracted refugee situations in the Cincinnati Area.
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: This research project looks at two major protracted refugee situations that have affected the Cincinnati area. Both the Burundian refugees and the Bhutanese refugees had been held in protracted situations for around 20 years and are now among the largest refugee populations in the Northern Kentucky and Cincinnati area. This study compares the experiences of the two groups in relation to integration and inclusion in American society.

P-127: ERIC EVANS, ASHLEY HUNTLEY, BRANDON STOCKMAN, GREG SANDY, OLIVIA BROOKS
Collapse of Maya Society in the Copan Valley
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: The prehistoric Maya developed an elaborate urban center in the Copan Valley in present day Honduras. The culture experienced it's peak flourescence between 750 AD and 800 AD, then underwent decline and eventual abandonment. This poster considers archaeological data as well as scientific data, such as pollen core analysis, to identify cultural and environmental reasons for the rise and fall of this particular Maya city and the surrounding region. By examining the population data, political systems, ecological circumstances, landscape alterations and climate features, factors associated with and resulting from the human-environmental interaction at Copan contribute to understanding it's collapse.

P-128: CHEYANNE PERKINS, JASON BELLIS, CHRISTINA HAHN, JONATHAN SCHADLER
Environmental Impacts of the Norse in the North Atlantic
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: The Vikings were great sailors and explorers that colonized the North Atlantic from off the coast of Europe to Newfoundland in North America. Their North Atlantic settlements all had minor successes but in the end, each north Atlantic settlement failed or declined. This poster examines the environmental impacts and other strategies of the Norse peoples affected their success and failures in the north Atlantic.

P-129: KATHRYN STEFFEN, LISA HOFFMANN, LAURIE KELSO, PATRICIA PERKINS, KEVIN SOMMERKAMP
Resilience and Decline in the American Southwest
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: The harsh environment of the American Southwest was once home to many native cultures; among these were the Anasazi of Chaco Canyon and the Hohokam. These cultures were able to adapt to their environment and thrived until a series of stresses impacted them in the early part of this millennium. New adaptive strategies failed and these cultures fell into decline. This poster examines some of the adaptive strategies including extensive irrigation systems as well as dry farming techniques used to enhance crop production. Archaeological evidence and dendrochronology show that severe drought contributed to the eventual demise of these cultures.

P-130: REBECCA WREN, TRICIA FAHRMEIER, SARAH HAFLEY, ASHLEY HARDY
Ancient Amazonia's Missing Populations
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY
Abstract: Archaeologists have long debated the presence of large, sedentary populations in the Amazon before 1492. There are some that believe the Amazon rainforest is a pristine paradise and that tribal populations have changed very little over the course of the past millennia and had little impact on their environment. Amazonian dark earth deposits found in connection with known settlements suggest human alteration. Roads and other earthworks connect known multiple settlement sites over large expanses of land, and varying types of earthwork structures and settlement sites all give evidence in support of the sedentary population theory. Both archaeological evidence and historical accounts provide necessary explanation for the lack of large, sedentary societies in the modern Amazon rainforest.

P-131: ELIZABETH RUWE
The History of Art in Mexico
FACULTY SPONSOR(S): LYNN SMITH, TEACHER EDUCATION;
REES STORM, DEPARTMENT OF VISUAL ARTS, HONORS
Abstract: For my project, I researched the history of art in Mexico. My poster highlights the different periods and styles of art in Mexico, with a chronological focus. I also investigated indigenous art and its function in the religious and political aspects of Mexican history. Also included are European influences on art in the colonial age and the 19th century followed by an investigation into the Muralist movement. Finally, research on art of the past fifty years and a brief look at folk art and photography in modern Mexico will be presented.

P-132: CATHERINE AL-RAMAHI
Using Positive Reinforcement to Increase Time on Task
FACULTY SPONSOR(S): STEPHEN WALKER, TEACHER EDUCATION
Abstract: The purpose of this behavior change project was to increase the time on task of a fourth grade student struggling with engagement during independent activities and direct teacher instruction. The research design selected was a simple AB design that utilized a baseline and an intervention condition. Interval Recording was the data collection system used to measure changes in the target behavior. A reinforcement survey was utilized to determine the rewards used in a contingency designed to encourage on task behavior. Reinforcers that were approved by his teacher, a behavior contract and an incentive chart were developed. The student dramatically increased time on task making this behavior change project a rewarding success for all involved!

P-133: REBECCA THOMAS
Using Contingency Management to Increase Student Work
FACULTY SPONSOR(S): STEPHEN WALKER, TEACHER EDUCATION
Abstract: This behavior change project began with a problem: a student with Autism required three or more verbal and gestural prompts to complete each question on handwriting worksheets that his peers were able to independently complete. To begin the project, baseline data was collected and the function of the target behavior was identified. Next, I researched potential reinforcers and decided on the use of a primary reinforcer in the form of Goldfish crackers. A contingency plan was then developed and implemented. The project was successful as evidenced by the student's increased ability to independently complete assigned seat-work with fewer instances of teacher prompting

HONORS POSTER PRESENTATIONS

in the Otto Budig Auditorium, April 16th.

H P-1: CAITLIN BROWN
An Ideal Husband
FACULTY SPONSOR(S): BRIAN ROBERTSON, THEATRE AND DANCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1-1:10PM
Abstract: I have been told my whole life by people in the theater that I cannot act, especially in a period play, because I am in a wheelchair. I am doing a production of Oscar Wilde's play An Ideal Husband in the student run Studio 307 Series in NKU's Theatre and Dance Department. I am putting all of the actors in wheelchairs to show that you can be in a wheelchair and act. Besides proving this to the faculty, students and audience members, I also want to prove it to the cast and crew of the show.

H P-2: LINDSEY DOUGHERTY
Business Strategy of YUM! Brands China
FACULTY SPONSOR(S): DENISE LUETHGE, MANAGEMENT
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1:50-2PM
Abstract: Since the company's foundation in 1997 YUM! Brands continual focus has been on quick service restaurant chains. Based in Louisville, Kentucky, YUM! Brands operates five concept restaurants: KFC, Pizza Hut, Taco Bell, Long John Silvers, and A&W. In recent years YUM! Brands success has been driven by the focus on building leading brands in China. Given YUM! Brands strong competitive position in China, the company is rapidly adding KFC and Pizza Hut casual dining restaurants in the China division. This project will analyze the business strategy of YUM! Brands in regards to expanding in the emerging Chinese market.

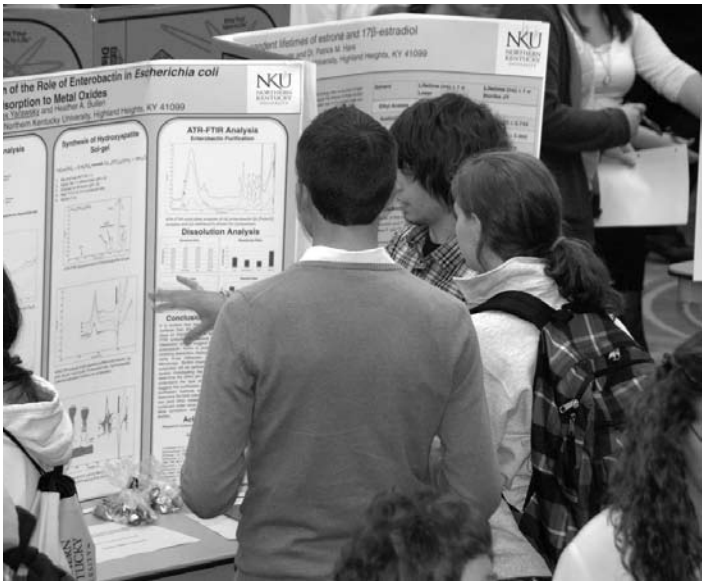
H P-3: KARLI DWYER
Travel Writing Books for Early Childhood
FACULTY SPONSOR(S): RACHEL NOLL, TEACHER EDUCATION
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 2:50-3PM
Abstract: For this project, I have made children's books. Through the Honors Program, I was in the Honors International Teaching Fellowship. The focus of HITF is the globalization of education. I traveled to both Ireland and Mexico to gain knowledge of their schooling systems and curricula. Back in the states, I found early childhood classrooms were unaware of the other countries and peoples that exist in them partially due to the lack of books about countries available at their level. I have set out to make children's books of my adventures to allow my future students to explore these cultures.

H P-4: LORYN FACEMIRE
Novel Cytokines Involved in Allergic Immune Response to Human Respiratory Syncytial Virus
FACULTY SPONSOR(S): JOSEPH MESTER, BIOLOGICAL SCIENCES
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1:40-1:50PM
Abstract: The immunomodulatory effects of human respiratory syncytial virus (HRSV) are recognized but not fully defined. The purpose of this study was to determine the potential role of novel cytokines and chemokines in the human macrophage and natural killer cell response to HRSV. Cytokine and chemokine expression was measured using real-time polymerase chain reaction (RT-PCR). These immune factors may play a key role in mediating the allergic response, and may also contribute to viral disease in the HRSV-infected host.

HP-5: JUSTIN FELDMANN, SHRIVER WITHROW
Using an Asymptomatic Dose of MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) to Assist in Developing a Novel Mouse Model of Parkinson's Disease
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
PATRICK SCHULTHEIS, BIOLOGICAL SCIENCES
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1:10-1:20PM
Abstract: Parkinson's disease (PD) is a neurodegenerative disorder with no known cure. The exact cause of the disease is currently unknown but is caused by a depletion of dopamine neurons in the substantia nigra (SN). The purpose of this project is to investigate whether a sub-symptomatic dose of the PD inducible drug MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine) will have an effect on dopamine neurons of the SN of a wild type mouse. The number of dopamine neurons in the SN will be counted and analyzed via stereological analysis. The results of this project could assist in our goal to develop a new mouse model of PD, which could be used to test for new treatments to help alleviate the symptoms associated with PD.

H P-6: TAYLOR MASON
Linkage of a Sarco-Endoplasmic Reticulum ATPase (SERCA) Inhibitor to a Prostate Specific Peptide
FACULTY SPONSOR(S): KC RUSSELL, CHEMISTRY
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1:20-1:30PM
Abstract: The enzyme sarco/endoplasmic reticulum Ca2+-ATPase (SERCA) is present in prostate cancer cells, and its function is to transfer Ca2+ ions from the cytosol into the sarcoplasmic reticulum. Cell apoptosis is triggered when SERCA is inhibited. The purpose of this work is to link a mono-leucinated derivative of 2,5-di-tert-butylhydroquinone (DTBHQ)—a small SERCA inhibitor that is potent at the micromolar level (IC50 15 μM)—to a pre-synthesized peptide specific for the prostate specific antigen, which is secreted by prostate cancer cells. Recently, confounding obstructions to the work have been encountered and will be discussed, as well as projected future work.

H P-7: CATIE MEYER
Staples: Business Strategy and Human Resources
FACULTY SPONSOR(S): DENISE LUETHGE, MANAGEMENT
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 2:30-2:40PM
Abstract: Operating both domestically and internationally, the Staples Company has developed a successful Business Strategy that has allowed for top rankings in its operating markets. Staple's strategy will be studied and analyzed for this project in conjunction with the NKU College of Business Undergraduate Business Strategy course. Once a thorough analysis is presented, it will be used to effectively project Human Resource strategies that align properly. The purpose of this is to highlight the importance of the overall Business strategy in the development of the Human Resource Strategy.



H P-8: NOMASWAZI NKOSI
US Tax Structures
FACULTY SPONSOR(S): BOB SALYER, ACCOUNTING, FINANCE AND BUSINESS LAW
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 2-2:10PM
Abstract: In light of the present economic turmoil that most countries are facing, it is imperative to find an effective tax system that provides more income for the government as well as stimulate growth for the economy. The challenge for government is to find such a tax system that doesn't overtax individuals and businesses. Typically the people paying most taxes are people in the top 5 percent earning brackets; however, these are the same people who mostly enjoy any tax breaks or other tax incentives permitted by the government. This paper will discuss some of the extreme tax restructures that have become popular in the U.S. and will provide an analysis and comparison between the tax structures within the United States.

H P-9: BRITTANY SMITH
The Effects of Political Images on Voting Patterns and Preferences
FACULTY SPONSOR(S): SHAUNA REILLY, POLITICAL SCIENCE AND
CRIMINAL JUSTICE
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 1:30-1:40PM
Abstract: No matter where you are in the United States, you are most likely influenced by advertisements in several ways each day. Political images are especially abundant in the form of commercials, photos, comics, and radio spots. These are difficult to avoid during elections. Political images effect how voters adjudicate candidates and are critical during an electoral campaign. This paper will evaluate the impact of political advertising and photo presentation on elections and illustrate the large role that political images have on voter confidence and support.

H P-10: ROBERT SPAULDING, HEATHER BULLEN, HANNA DASENBROCK
Real-Time Polymerase Chain Reaction Evaluation of Polybutylcyanoacrylate Nanoparticle Toxicity in an In Vitro Model of the Blood Brain Barrier.
FACULTY SPONSOR(S): KRISTI HAIK, BIOLOGICAL SCIENCES;
RUTH HEMMER, BIOLOGICAL SCIENCES
OTTO BUDIG AUDITORIUM, UC270, APRIL 16TH, POSTER VIEWING 3-4PM,
PRESENTATION 2:40-2:50PM
Abstract: Approximately one-billion individuals worldwide suffer from neurological disorders. Unfortunately, the vast majority of available pharmaceutical compounds (~ 90%) cannot cross from the circulation into the brain. Polybutylcyanocrylates (PBCAs) are biodegradable nanoparticles that are able to cross into the brain and can be coated with many surfactants and loaded with drugs. For these NPs to have therapeutic use, the toxicity needs to be tested. In this project, an in vitro model of the blood brain barrier (BBB) was created, exposed to PBCAs, and toxicity evaluated via real time polymerase chain reaction (RT-PCR).

HONORS ORAL PRESENTATIONS

in the Otto Budig Auditorium, April 17th.

H O-1: ARIN ARNOLD
Value of Memorials: How We Can Effectively Remember World War I in America
FACULTY SPONSOR(S): FRANÇOIS LE ROY, HISTORY AND GEOGRAPHY
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 1:30-2PM
Abstract: This project involves arguing for a new, grand national memorial for World War I on the National Mall in Washington, D.C. The goal is to display the significance of World War I in American history. This has been done by providing political, economic, and cultural impacts the war had on the United States. The importance of World War I lies at the forefront of the argument, but showing the relevance of World War I in European culture in comparison to American culture is also important in this research. Arguing for a new memorial is the most fundamental part of this project.

H O-2: BRITTANY BARNETT, JENNIFER ROSS, RACHEL STEVENS, MATT GANNON, MOLLY GRIFFITH
The Effects of Early-Life Antipsychotic Drug Treatment on Impulse Control in Rats
FACULTY SPONSOR(S): MARK BARDGETT, PSYCHOLOGICAL SCIENCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 11-11:30AM
Abstract: The use of antipsychotic drugs (APDs) in children has raised concerns about their impact on brain development. This study is using rats to determine if early-life administration of the APD, risperidone, alters impulse control during adulthood. Impulse control will be measured using a differential rates of low responding task; rats must wait a specified amount of time (e.g., five seconds) between responding to receive a food reward. It is hypothesized that adult rats treated with risperidone early in life will be less likely to withhold responding. This study will provide valuable insights into the long-term outcome of developmental APD treatment.

H O-3: RACHEL BISHOP
Bridging the Real Food Knowledge Gap: Focus Group Testing of Generation-Y Resource Needs
FACULTY SPONSOR(S): MAGGIE GOUGH, NKU WELLNESS
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 8-8:30AM
Abstract: Four of the top ten leading causes of death in the U.S.—coronary heart disease, stroke, diabetes, and cancer—can be linked to diet. It was hypothesized that in addition to overwhelming access to highly processed foods, lack of culinary know-how and basic knowledge of non-processed foods plays a significant role in the health of generation-Y. Focus group testing of barriers to eating healthfully, perspective of culinary skill level, and basic food knowledge was conducted. From this testing, ongoing NKU Wellness research, and literature reviews, a website was started to provide solutions tailored to the needs of the college-aged population.

H O-4: KARA CHAN
Solvent Effects on the Excited State Lifetimes of Natural Estrogens
FACULTY SPONSOR(S): PATRICK HARE, CHEMISTRY
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 4-4:30PM
Abstract: The excited-state lifetimes of the estrogens 17-beta-estradiol and estrone were studied in various solvents. In the environment, both of these molecules can potentially affect the sexuality of wildlife. They can be degraded following absorption of light; excited state lifetimes can give information on this process. The excited-state lifetime for estrone varied from 0.1 to 4 ns, depending on the solvent and the emission wavelength. 17-beta-estradiol's excited-state lifetime ranged from 1 ns in ethyl acetate to 4 ns in alcohols. Similar solvent-dependent trends are found in the molecules' fluorescence quantum yields. Estrone's emission was also found to depend on the excitation wavelength used. These results have implications for the amount and type of photochemistry that these endocrine disruptors undergo.

H O-5: HOPE DISCHAR
Drinking, Speeding, and Voting
FACULTY SPONSOR(S): PERILOU GODDARD, PSYCHOLOGICAL SCIENCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 9-9:30AM
Abstract: This study tests the Prohibition-era idea that widespread disobedience to some laws (in this case, laws against marijuana use and underage drinking) leads to disrespect for the legitimacy of the law in general. The study examines the relationship between students' use of alcohol and marijuana and five motivational factors associated with obedience to the law in Tyler's (2006) research (deterrence, social norms, perceived legitimacy of authorities, procedural justice, and personal morality). Finally, the study examines whether disobedience to marijuana and alcohol laws is related to feelings of cultural estrangement, low political efficacy, and reduced intentions to vote in the 2012 elections.

H O-6: SARAH DOMHOFF
A Celebration of Diversity: Refugees in the Cincinnati Area
FACULTY SPONSOR(S): JUDY VOELKER, SOCIOLOGY, ANTHROPOLOGY AND
PHILOSOPHY
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 3-3:30PM
Abstract: In 2010 alone, the United States resettled over 70,000 refugees to American soil. Nearly 2,000 of those refugees arrived in Ohio. However, many times these populations are overlooked and pushed to the margins of society by the general public, hindering inclusion into society and fostering injustice fueled by ignorance. This creative research project celebrates the honor that it is to be among such diversity right in our own city. By researching individual experiences and showcasing the humanity of all individuals, this project promotes members of our community moving together towards greater inclusion and respect for all of its members.

H O-7: AIMEE GEISE
Universal Preschool. Will it help Kentucky's Children?
FACULTY SPONSOR(S): JAESOOK GILBERT, TEACHER EDUCATION
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 3:30-4PM
Abstract: This article is a research-based assessment of Universal preschool and why it will benefit Kentucky's children. The article addresses the importance of early education for all children as well as what quality care is. It also provides an overview of some of Kentucky's current major programs and looks at Universal programs that are in place in other states. | The other part of my project will be a letter writing campaign to encourage Kentucky's legislature to try to develop a more Universal Model for Kentucky preschools. The letters will come from a multitude of people from different places and occupations. |

H O-8: ELLEN HILL
Righteous Gentiles: Educating High School Students through Historical Fiction
FACULTY SPONSOR(S): NANCY KERSELL, ENGLISH
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 1-1:30PM
Abstract: The Righteous Gentiles are a topic often glossed over in many high school Holocaust studies. These rescuers were those who helped their Jewish brothers and sisters in their most desperate hour, risking eminent danger to preserve humanity and hope. This historical fiction novella educates high school students about the role these heroic people played in overcoming the pressures of their corrupt country. Drawing on true events, the accompanying guide will help teachers guide their class along the story of Stefania, a girl who risks everything to stand up for what she believes is right.

H O-9: HANNAH HILLGER
Design and Creation of a Coffee Roaster
FACULTY SPONSOR(S): JAMES BOHACHE, PHYSICS AND GEOLOGY;
BRIAN WARNER, PHYSICS AND GEOLOGY
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 4:30-5PM
Abstract: During a course with Professor Jodi Ferner, called "World of Coffee", I discovered a new passion. The art of home-roasting is a growing trend – and I have hopped on board! In my quest to roast coffee at home, I found a niche in the market of home coffee roasters. As an engineering technology student, I decided to fill that gap. My honors capstone (and senior project for the MMET program) is to design and create an affordable roaster. I will also be performing some engineering analysis on the roaster, and hopefully filling a large gap in the home roasting market.

H 0-10: ALLISON JACOBS
Psychosocial Differences Among Dancers, Non-Dance Exercisers, and Non-Exercisers
FACULTY SPONSOR(S): KIMBERLY BREITENBECHER, PSYCHOLOGICAL SCIENCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 9:30-10AM
Abstract: The purpose of this study is to examine the relationships among participation in dance, participation in non-dance exercise, and psychological well-being. Participants in this study will include approximately 250 Northern Kentucky University students enrolled in psychology classes. Participants will respond to an anonymous, online survey that includes questions about their participation in dance activities, non-dance exercise activities, and other leisure activities. Participants will also respond to scales assessing various aspects of psychological well-being, including positive affect, negative affect, depression, anxiety, and aggression. In general, it is hypothesized that dancers will score more favorably than non-dance exercisers and non-exercisers.

H O-11: SUSANNA KNADLER
Cincinnati Reds: Getting the Fans in the Seats
FACULTY SPONSOR(S): ALI GODEL, HONORS
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 8:30-9AM
Abstract: Take a look into the Cincinnati Reds marketing. Beginning with the history and establishment of the Cincinnati Reds baseball team and organization then traveling to how the Reds use marketing techniques in current times. Looking into aspects of social media and blogs, while looking at some more traditional advertisement outlets as well. All this gives the background for the project of making an advertising campaign for the Cincinnati Reds. Focusing on three separate target audiences each will have a proposal geared specifically for that audience.

H O-12: MEGAN REYNOLDS, AMY WEINSTOCK
Innate Immune Responses to Pandemic Influenza Virus Hemagglutinin Proteins
FACULTY SPONSOR(S): JOSEPH MESTER, BIOLOGICAL SCIENCES
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 2:30-3PM
Abstract: Influenza virus is a major human respiratory pathogen. Every year, a new vaccine is created to protect against the virus because of changes in the surface hemagglutinin (HA) protein. Hemagglutinin is a major vaccine component, yet its immunomodulatory effect on innate immune cells is relatively unknown. The goal of this project was to determine the modulatory effect of three different HA proteins from seasonal and pandemic influenza viruses on human monocyte/macrophages. Real-time PCR and ELISA assays revealed that HA activates macrophages and upregulates expression of pro-inflammatory cytokines. This response is likely important for vaccine effectiveness and clearance of natural infection.

H O-13: ADRIANA RUF
Exercise Behaviors and Exercise-Related Beliefs
FACULTY SPONSOR(S): KIMBERLY BREITENBECHER, PSYCHOLOGICAL SCIENCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 10-10:30AM
Abstract: The purpose of the present study is to measure the relationships among exergaming behavior, body satisfaction, body mass index, and exercise-related beliefs. Northern Kentucky University psychology students will be recruited to participate in an anonymous, online survey. Participants will respond to measures assessing exercise habits, including participation in traditional exercise and exergaming. It is hypothesized that, with respect to body satisfaction, weight satisfaction, health and fitness beliefs, total exercise amounts, and satisfaction with exercise habits, the following pattern of group differences will be evident: mixed exercisers > traditional exercisers > exergamers only > non exercisers.

H O-14: MELISSA TOMS
Method Development for the Isolation and Detection of Synthetic Cannabinoids in Saliva
FACULTY SPONSOR(S): HEATHER BULLEN, CHEMISTRY
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 11:30-NOON
Abstract: As states move quickly to put legislation in place banning the sale and use of synthetic cannabinoids, the need for a sensitive, noninvasive method for the detection of these compounds increases. Because of the nature of these substances, they occur in minute quantities in the aqueous saliva matrix. This research evaluates the use of solid phase micro-extraction gas chromatography mass spectrometry (SPME-GC-MS) to detect and positively identify JWH-018 and JWH-073 present in saliva. The isolation of the analytes of interest and viability of this approach to detect low levels of these substances will be discussed.

H O-15: DANIELLE WALLACE
An Equine Affair
FACULTY SPONSOR(S): ROBERT WALLACE, ENGLISH
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 10:30-11AM
Abstract: I will be presenting a series of creative non-fiction stories regarding my interactions, experiences and relationships with horses. For the past 10 years I have had daily interactions caring for, riding and training horses. Through the use of research, journals, stories and paintings I seek to express my ideas, thoughts, questions, conclusions, and experiences with horses. Each story will focus primarily upon a theme or idea that I observed both in my interactions and in my research. The stories will also be paired with a painting of the same idea and theme.

H O-16: JENNIFER WHITE
The Effects of Visual Arts on Stress
FACULTY SPONSOR(S): JULIANN YOUNG, PSYCHOLOGICAL SCIENCE
OTTO BUDIG AUDITORIUM, UC270, APRIL 17TH, PRESENTATION 2-2:30PM
Abstract: "Art offers…space—a certain breathing room," John Updike. The relationship between the arts and mind-body wellness is well documented. Art is also becoming increasingly popular in the therapeutic setting, allowing clients to explore art as a medium to reduce stress, tension and deal with life changes. In the applied setting, usefulness of art as a tool for stress reduction is well documented. However, virtually no experimental research documents the use of viewing art to reduce stress. The current study aimed to address the lack of research by investigating the relationship between visual art and transient rates of stress.

DANCE, MUSIC AND THEATRE EVENTS

BRASS CHOIR
Wednesday, April 4, 2012
10:30-10:50 am
Tent, Plaza in Front of Founders' Hall

Trumpet
Michael Baker
Brandon Koch
Chris Meeks

Horn
Ari Fitter
Barbara Phillips
Alex Robinette

Trombone
John Collins
Kyle Maynard
Joe Singleton
Michael Voet

Euphonemone
Matt Phillips
Zack Strong

Tuba
Herbie Cuthbertson
Sean Todd

BROADWAY CHORUS
Tuesday, April 3, 2012
1:40-2:00
Tent, Plaza in front of Founder's Hall

Michaelia Adams
Jessica Adamson
Alaina Broderson
Wes Carman
Cody Dale
Anthony Giver
Miranda Hamilton
Jordan Lloyd
Jack Manion
Anna McCafferty
Allysun Mellick
Katherine Moser
Kyle Pickett
Andrea Squires
Mary Kate Vanegas
Lea Verlin
Jamey Strawn, Director

CHAMBER CHOIR
Wednesday, April 4, 2012
12:40-1:10
Tent, Plaza in front of Founder's Hall

Soprano I
Gabby Jones
Katie Marx
Ashley Ruckel
Carly Weidlich

Soprano II
Michelle Asher
Chelsea Gabbard
Brooke Miller
Marissa Miller

Tenor I
Brian Butler
Kyle Heinrich
Wesley Schafer
Adam Seibert

Tenor II
Tim Buddell
Zac Mills
Keith Riegel

Alto I
Angelina Giuliano
Kaitlyn Kelley
Taylor Staples
Amberly Winfrey

Alto II
Maya Brlecic
Natalie Clarke
Anna Egan
Shani Hamilton

Baritone
Justin Cordero
Andrew Whelan
Mac Wilburn

Bass
Andrew Ankenbauer
Ryan Downey
Dakota Koch
Adam Robinson
Dr. Randy Pennington, Director

CHAMBER ORCHESTRA
Wednesday, April 4, 2012
2:30-2:50
Tent, Plaza in front of Founder's Hall

Madina Akhatova
Elijah Cunningham
Jacob Donnermeyer
Lauren Hancock
Nathaniel Hilvert
KaelannMcCauley
Alix Reynolds
Elizabeth Rice
Adrienne Royal
Robell Sahle
Laura Schroeder
Katelyn Tesla
Elizabeth Williams
Tyler Wood
Frank Restesan, Conductor

DANCE TROUPE
Tuesday, April 3, 2012
12:30-1:05
Tent, Plaza in front of Founder's Hall

Abby DeWald
Courtney Duncan
Allison Evans
Chelsea Foltz
Amanda Griffith
Monica Hannan
Allie Heidrich
Victoria House
Cameron Imbrogno
Montez Jenkins
David Netherton
Kayla Pecchioni
Abbie Stone
Joey Squeri
Abby Wagner
Molly Watson
Jane Green, Dance Troupe Leader

GUITAR ENSEMBLE
Tuesday, April 3, 2012
1:40-2:00
Student Union Ballroom

Brent Benzinger
Caitlin Combs
Aaron Hoover
Chris Lawrence
Chris Saalfeld
Colin Weeks
Andrew Winner, Director

JAZZ COMBO 1
Tuesday, April 3, 2012
2:10-2:30
Tent, Plaza in front of Founder's Hall

Trevor Caddell, saxophone
Sean Fitzpatric, trumpet
Monte Lykins, guitar
Samuel Fister, piano
Matt McCoy, bass
Sean Herzig, drums
Brian Hogg, Director

JAZZ COMBO 2
Tuesday, April 3, 2012
2:35-2:55
Tent, Plaza in front of Founder's Hall

Brandon Prew, saxophone
Michael Tacy, guitar
Dan Dorff, piano
Kevin McClellan, bass
Usman Salahuddin, drums
Brian Hogg, Director

JAZZ COMBO 3
Wednesday, April 4, 2012
11:00-11:20
Tent, Plaza in front of Founder's Hall

Matthew Averdick, guitar
Chris Barlow, bass
Ryan Boldery, guitar/sax
Ryan Lietzenmayer, sax
Charles McComrmick, drums
Chris Riney, sax
Michael Tacy, guitar/piano
Phil Burkhead, Director

JAZZ ENSEMBLE / LITTLE BIG BAND
Wednesday, April 4, 2012
3:30-4:00
Tent, Plaza in front of Founder's Hall

Saxophone
* Trevor Caddell, lead alto
Steven Funke, alto
* Brandon Prew, tenor
* Andrew "AJ" Pearson, tenor
Jacob Jouett, baritone

Trumpet
* Ian Caldwell
* Sean Fitzpatric
Chris Meeks
Dr. Brant Karrick

Trombone
* John Collins
Michael Voet
Sean Todd
Matt Phillips

Rhythm Section
* Sam Fister-piano
* Monte Lykins-guitar
* Matt Wiles-bass
* Ben Bratton-drums

** denotes members of the NKU Little Big Band*

LATIN/SALSA ENSEMBLE
Wednesday, April 4, 2012
11:30-11:50
Tent, Plaza in front of Founder's Hall

Brent Benzinger, guitar
Ben Bratton, percussion
Jeremy Caddell, percussion
Alex Cook, saxophone
Sam Fister, piano
Sean Herzig, percussion
Matthew McCoy, bass
AJ Pearson, saxophone
Michael Voet, trombone
Ricky Williams, saxophone
Pablo Benevides, Director

MIXED CHAMBER ENSEMBLE
Tuesday, April 3, 2012
1:20 -1:40
Student Union Ballroom

Herbie Cuthbertson
Doug Hyden
Chris Lawrence
Chris Saalfeld
Zackary Strong
Brian Theis
Colin Weeks
Andrew Winner, Director

MUSICAL THEATRE TOUR GROUP
Tuesday, April 3, 2012
11:50-12:20
Wednesday, April 4, 2012
3:00-3:20
Tent, Plaza in front of Founder's Hall

Suzanne Blunk
Harli Cooper
Jimmy Houlihan
Matt Krieg
Hannah Linser
Jeremy Long
Kayla Pecchioni
Taylor Reynolds
Monica Tenhover
Jamey Strawn, Director

PERCUSSION ENSEMBLE
Wednesday, April 4, 2012
10:00-10:20
Tent, Plaza in front of Founder's Hall

Cayla Bowling
Benjamin Bratton
Michael Bruce
Jeremy Caddell
Tyler Harrison
Vincent Hisle
Charles McCormick
Morgan Minor
Mary Parker
Colleen Schabell
Rachael Schabell
Jonathan Spears
Ian Stokes
Scott Lang, Director

R&B COMBO
Tuesday, April 3, 2012
3:00-3:30
Tent, Plaza in front of Founder's Hall

Anna Albanese
Matthew Averdick
Adam Buchanan
Brian Butler
Jeremy Caddell
Alex Cook
Andrea Hubrick
Mary LeMasters
Monte Lykins
Samantha Prewitt
Griffen Ross
Taylor Staples
Amberly Winfrey
Ted Karas, Director

SAXOPHONE QUARTET
Tuesday, April 3, 2012
1:00-1:20
Student Union Ballroom

Ryan Downey, *alto saxophone*
Steven Funke, *baritone saxophone*
AJ Pearson, *tenor saxophone*
Brandon Prew, *soprano saxophone*

STEEL BAND
Wednesday, April 4, 2012
12:00-12:30
Tent, Plaza in front of Founder's Hall

Cayla Bowling
Veronica Brookbank
Perilou Goddard
Morgan Minor
Matthew Phillips
Tim Oliver
Colleen Schabell
Ian Stokes
Stan Ginn, Director

STRING QUARTET
Tuesday, April 3, 2012
2:20-2:50
Student Union Ballroom

Madina Akhatova
Nathan Hilvert
Stacie Hilvert
Elizabeth Rice

TUBA EUPHONIUM ENSEMBLE
Tuesday, April 3, 2012
11:20-11:40
Tent, Plaza in front of Founder's Hall

Herbie Cuthbertson
Joe Drury
Zack Strong
Sean Todd
Yuki Onitsuka, Director

VOCAL JAZZ ENSEMBLE
Wednesday, April 4, 2012
2:00-2:20
Tent, Plaza in front of Founder's Hall

The Vocalists
Andrew Ankenbauer, *bass*
Timothy Buddell, *baritone/tenor*
Anna Egan, *mezzo/alto*
Chelsea Fries, *soprano/mezzo*
Kyle Heinrich, *tenor*
Gabby Jones, *soprano*
Katie Marx, *soprano*
Adam Robinson, *bass*
Wesley Schaffer, *tenor*
Adam Seibert, *tenor*
Carly Weidlich, *soprano/mezzo*
Amberly Winfrey, *mezzo/alto*
Dr. Randy Pennington, Director

The Vocal Jazz Rhythm Section
Trevor Caddell, *saxophone*
Sean Fitzpatric, *flugelhorn, trumpet*
Sean Herzig, *drum set*
Matt McCoy, *bass*
Phillip Burkhead,Director

WOMAN'S ENSEMBLE
Wednesday, April 4, 2012
1:20-1:50
Tent, Plaza in front of Founder's Hall

STUDENT PARTICIPANTS

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MANAGEMENT

MATHEMATICS AND STATISTICS

MUSIC

NURSING

PHYSICS AND GEOLOGY

POLITICAL SCIENCE AND CRIMINAL JUSTICE

PSYCHOLOGICAL SCIENCE

SOCIAL WORK

SOCIOLOGY, ANTHROPOLOGY AND PHILOSOPHY

STUDENT ACHIEVEMENT CENTER

TEACHER EDUCATION

THEATRE AND DANCE

VISUAL ARTS

WELLNESSCENTER

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