Earlham College's 4th Annual Research Conference

April 22nd - April 24th 2013
Members of the Richmond and Earlham College Community,

     It gives us great pleasure to welcome each and everyone of you to the Earlham College 4th Annual Research Conference!!

     This event is an opportunity for the students here at Earlham to show the work that they have been doing in their time here. We have a wide variety of work from a variety of departments all over campus. We hope that you will enjoy the variety of work that is together in one place and that you will be able to take something new away - whether it is valuable insight, a new perspective on the world and the people in it, or simply a thirst for more knowledge.

     On behalf of the Earlham College 4th Annual Research Conference planning committee, welcome and enjoy!

Key Legend

⭐️ Grant winners

🎓 Senior Capstone
4th Annual Research Conference
Earlham College
Richmond, Indiana
2013

Steering Committee

Faculty
Rachael Reavis
Maggie Thomas
Kathy Milar
Lynn Knight

Students
Ashley Chabot
Rodoula Kyvelou
Victoria Makuru
Xan Smith
Schedule at a Glance

April 22nd
Poster Presentations, Richmond Room
4:30- 5:30 pm Session 1
5:45- 6:45 pm Session 2

April 23rd
Paper Presentations, LBC 211, 212, 214
4:30- 5:30 pm Session 1
5:45- 6:45 pm Session 2

April 24th
Paper Presentations, LBC 211, 212, 214
1- 2:20 pm
Bond Around The Heart, The Heart
2:30 pm
Please join us on the Heart to celebrate the end of the ARC and the philanthropic donation by Byron Bond with an ice cream social!
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Detailed Schedule

April 22nd  Poster Session 1  

4:30-5:30pm, Richmond Room

1. Are Guns the Problem in America?  
   Andrew Cain  
   Keywords: Guns, Rights, Violence

2. Preliminary Soil Mineralogy of the Haghtanakh 3 Site, Northern Armenia  
   Ikumi Doucette  
   Keywords: Geoarchaeology; Soil Mineralogy; Paleosol

3. The Mysterious Effects of Music  
   Andrey Gavrilov, Mikel F. Qafa, & Jinhee Kim  
   Keywords: Music; Performance; Brain

4. Mapping Miller Farm  
   Sam Fordyce  
   Keywords: GIS; Mapping; Farm

5. Using Pi-Basic Ligands to Split the Hydrocarbon Bond: A Computational Study  
   Iyad Hillal Manassra & Chrysan Joy Mohammed  
   Keywords: Computational Chemistry; Catalysis; Environmental Science

6. Japanese Gardening in an Earlham Context  
   Madolin Yoshikane  
   Keywords: Garden; Japanese

7. Hold Charities Accountable: Regulation Policy on Fiduciary Transparency of Charity in China  
   Weixi Liang  
   Keywords: Transparency; News Media; China
8. Techniques for Measuring Ultrasonic Tissue Properties of Cells
   Aislinn Daniels, Aditya Mahajan, & Yim Rodriguez
   Keywords: Ultrasound; Phantoms; Backscatter

9. Environment vs. Economy: China’s Evolving Stance on Environmental Policy
   Holden Bucher
   Keywords: Environment; Media; China

    Roger Clayton
    Keywords: China; Media; Power

    Logan Goodwin
    Keywords: Education Reform; Standardized Testing; Critical Thinking

12. Development of an Active Magnetic Regeneration Refrigerator
    Justin Vadas
    Keywords: Magnetocaloric; Magnetic; Refrigeration

13. Ceramic Petrology and Soil Micromorphology of the Danilo Bitinj and Pokrovnik Sites, Dalmatia, Croatia
    Robert Endicott & Imogene Ellis
    Keywords: Soils; Croatia; Geoarchaeology

14. Countering Transnational Crime Organizations in the Mexican American Border
    Joel de Jesus Lozada Yanez
    Keywords: Bilateral Agreements; National Security; Mexico-United States
15. LittleFe - The Educational Appliance for Parallel and Cluster Computing
   Ivan Babic, Kristin Muterspaw, Elena Sergienko, Ben Yee, & Henrish Maluleka
   Keywords: LittleFe; BCCD; Education

    Eric Parton
    Keywords: Subsidies; Industrial Dairy; Policy

17. Tissue Engineering from Bench to Bedside: Ethical Considerations
    Emma Grygotis
    Keywords: Tissue Engineering; Human Medicine; Ethics

18. The Ethics of Assisted Colonization
    Alina Kanaski
    Keywords: Ethics; Assisted Colonization; Climate Change

19. Concealed Carry Across Borders
    Gilbert Ambler

    Jack Cape
    Keywords: Education; Policy; Reform

21. Money Makes All the Difference: The Effects of Exposure to Money on Helpfulness
    Laura Donohue, Xan Smith, Ashley Chabot, Arielle Webb, Kathleen Bolan, & Lena Flores
    Keywords: Money; Helpfulness; Replication

22. Partisan Identity Shift: The Dawn of a Democratic Revolution
    Conor Hall
    Keywords: Partisan; Shift; Demographics
April 22nd   Poster Session 2

5:45- 6:45 pm, Richmond Room

1. Molecular Dynamics Studies of Z[WC]-DNA and the B- to Z-DNA Transition
   Alma Gracic
   Keywords: Molecular Dynamics Simulations; Z[WC]-DNA; B- to Z-DNA Transition

2. Factors Affecting Nesting Times in the Western Painted Turtle (Chrysemys picta bellii) in Western Nebraska
   Kate Hardy
   Keywords: Turtle; Behavior; Reproduction

3. China's Water Problem
   Annie Frodeman
   Keywords: China; Water; Media

4. Thermodynamic Investigation of Pedogenic Minerals at the Ptghavan 4 Site, Northern Armenia
   Nicole Nembhard
   Keywords: Thermodynamic; Pedogenic Minerals; Armenia

5. Future of New York City's Transportation
   Dakota McElley
   Keywords: Transportation; Climate Change; Sustainability

6. Dawn of the Fifth Generation of Chinese Communist Leadership
   Alexander M. Burns
   Keywords: China; Media; Xi Jinping

7. Quantitative Ultrasound Characterization and Comparison of Prostate Cancer Cells and Normal Prostate Cells
   Yim Rodriguez, Aislinn Daniels, & Aditya Mahajan
   Keywords: Ultrasound, Back-Scattering, Prostate Cancer
8. The Ethics of the Nonhuman Primate Model  
   Xan Smith  
   Keywords: *Nonhuman Primates; Parkinson's Disease; Ethics*

9. HIV/AIDS Related Stigma and Discrimination in China  
   Yuka Ohnishi  
   Keywords: *HIV/AIDS; Stigma; Discrimination*

10. The Peer Project: Daily Experiences of Bullying  
    Serena Wong, Marini Pickering, & Jese Stetson  
    Keywords: *Bullying; Victimization; Peer Project*

11. The Addition of Puerto Rico, North California, and South California into the Union  
    James Levi Simpson

12. Library as Career Incubator: Developing Future Professionals via Undergraduate Mentoring, Alumni Networking, and Work Shadowing  
    Sarah Brown-Anson & Brian Forman  
    Keywords: *Libraries; Archives; Mentoring*

13. Human Space Exploration  
    Dylan Drooger  
    Keywords: *Space Policy; Human Space Exploration*

14. Prioritizing Prevention: A Call to Increase Federal Spending for Combination HIV Prevention Programs in the United States  
    Lily Cutler  
    Keywords: *HIV/AIDS Combination Prevention; Public Health; Federal Funding for HIV/AIDS*

15. Ultrasound Characterization of Chinese Hamster Ovary Cells  
    Aditya Mahajan, Aislinn Daniels, & Yim Rodriguez  
    Keywords: *Ultrasound; Chinese Hamster Ovary Cells; Prostate Cancer*
16. Helping Survivors After the Assault
   Dylan Kyriacopoulos
   Keywords: Policy Brief; Sexual Assault; Survivor Help Centers

17. The Effect of Peer Relationships on Emotions of Foster Children
   Aisulu Sanat, Eli Maltz, & Mary Tierney
   Keywords: Peer Relationships, Foster Care, Emotions

   Laura Donohue & Lina Hegazi
   Keywords: Rejection; Loneliness; Friendship Support

19. National and International Discourse Around Domestic Violence in China
   Genevieve Beck-Roe
   Keywords: China; Media; Domestic Violence

20. Resolving the Tension: Reevaluating Immigration Policy in a Globalized World
   Nicole Vargas
   Keywords: Immigration Policy

21. Searching for West Nile Virus in Joseph Moore Museum Avian Specimens
    Nicholas Pondelis & Julie Tamanini
    Keywords: West Nile Virus; Joseph Moore Museum; Avian Specimens

22. Corruption in Modern China
    David Jones
    Keywords: China; Corruption; Media

23. Correctional Education: An Answer to Recidivism?
    Tom Slater
    Keywords: Recidivism, Correctional Education, Reentry Programs
April 23nd  Paper Presentation Session 1

4:30- 5:30 pm

**LBC 211 Panel**

**Exploring Theatre for Change**
Maria Adamson, Bita Baligh, Henry Bateman, Catherine Blencowe, Abigail Burns, Michelle Ehrhardt, Eric Frysinger, Claudia Greene, Nick McClaran, Elliot Palmer, Lirit Pendell, Mallory Ward, & Ted Wright

The Theatre for Change class will share what it has learned about theatre's potential to initiate positive and meaningful change. It will discuss process, present work developed in relation to the play SPEAK TRUTH TO POWER and collaborate with the audience to create an original interactive piece about student issues.

Keywords: *Theatre; Purpose; Collaboration*

**LBC 212**

**Target Based Perceptions of Immorality**
Dante Spellazza

Keywords: *Morality; Crime; Perception*

**And You Thought It Was Over: Bullying in Elementary School and College**
Laura Donohue

Keywords: *Bullying; Cross-Developmental; Social Appraisal*

"Why Should I Take Meds for Being Who I Am?": The Moral Careers of College Students with ADHD
Oto Ricardo Alves da Silva

Keywords: *AD/HD; Moral Career*

**Writing Instruction in Wayne County High Schools**
McKayla Heller

Keywords: *Writing; Composition; Pedagogy*
LBC 214
The Modification of Iraqi Citizen Rights by US Occupation: Political Theory, International Law and Public Health Perspectives
Arielle Hawney
Keywords: Citizen Rights; Military Occupation; Iraq

NGOs and Intergovernmental Organizations in Post-Conflict Bosnia and Herzegovina: Challenges, Impacts, and Lessons
Mirnes Salkic
Keywords: Nonprofits; Post-Conflict; Challenges

Cartographic Representation of Paris c. 1600-1715 and the Transformation of the Early Modern French State
Brian Forman
Keywords: Cartography, State, Early Modern France

Islam in Southeast Asia: Arrival of Islam and the Reasons for its Rapid Expansion
Yasas Wickramasinghe
Keywords: Southeast Asia; Islam; Silk Road
LBC 211 Panel
Exploring the Peace Encyclopedia
Ivan Babic, Kamil Hamid, Arielle Hawney, Mizuki Kondo, and
Juan Pablo Rabanales

The Oxford University Press International Encyclopedia of Peace
has moved its headquarters to Earlham. In this Ford-Knight
students are working on several projects looking toward future
editions of this reference work.

Keywords: Peace; Encyclopedia; Publishing

Student Designed Pedagogical Guide to the Oxford International
Encyclopedia of Peace

Expanding the Geographical Network of Contributors

Visual Images, Copyright, and Publishing

Oxford International Encyclopedia of Peace Consultation on
Environmental Sustainability
LBC 212 Panel
An Interdisciplinary View on Japanese Studies

There are many different lenses which to approach the study of Japan. From the late 19th century and into the 21st century, this panel attempts to view Japan through different academic angles of sociology, history and sociolinguistics.

Keywords: Japanese Identity; Imperialism; Language Ideology

The Effect of Projected Japanese Identity on the Education of Japanese-Brazilians and Kikokushijo
D. Lynne Francis

The Motivation Hierarchy: Japan’s Motivations for Imperialism in Late Meiji
Tyler McGinnis

Hello Högen: The Commodification of Dialect and Changing Ideology in Japan
Alessandro Pianetta

LBC 214
Gender Roles in German Fantasy Literature for Children and Young Adults
Alina Kanaski

Keywords: German Literature; Gender Roles; Children's & Young Adult Literature

"Who You Gonna Trust?" The Role of Gender and Job
Eli Maltz

Keywords: Gender; Androgyny; Trust

The Effect of Chivalry on Merchant Values in Medieval England
Olivia Hunter
Keywords: Medieval; City; Chivalry
April 24th Paper Presentation Session 1

1:00- 2:20 pm

**LBC 211**
Understanding Imagined Interactions
Ance Simanovica
Keywords: Social Interaction; Imagination; Affect

Facial Expression and Perception of Emotion
Anicka Meyers
Keywords: Facial Mimicry; Empathy; Emotion

The Effects of Levels of Processing on Haptic Memory
Anna Plotkin-Swing & Xan Smith
Keywords: Haptic Memory; Levels of Processing

Eye Spy: Empathy in the Eye of the Beholder
Clare Gamble
Keywords: Empathy; Pupillometry

Do You Have to Have a "God" to Be Emotionally Intelligent?:
The Role of Religiosity/Spirituality on Resilience and Emotional Intelligence
Aisulu Sanat
Keywords: Emotional Intelligence, Resilience, Religiosity/Spirituality
LBC 212 Panel
Approaches in Japanese Popular Culture Studies

Whether by applying theories to popular culture or using popular culture as a means of intertextual understanding, this panel seeks to provide new and different modes of considering and understanding contemporary Japanese popular culture.

Keywords: Pop Culture Studies; Japanese Studies; Japanese Popular Culture

Deconstruction in Fullmetal Alchemist: Confucianism and the West
Paul Palmer

An Examination of Takashi Murakami's Superflat Through Portrayals of the Characters Kaikai and Kiki
Ashley Cochran

Social Reform through Japanese Pop Culture
Hillary Nofil

LBC 214
Silence That Does Not Speak: Writing and Speech from Friday to the Fugitive Slave Act and Apartheid
Johnny Kauffmann
Keywords: Silence & Speech; Postcolonialism & Postmodernism; Canonicity

Hate Speech or Free Speech?
Alishba Zarmeen-Ahmed
Keywords: Freedom of Expression; Hate Speech; Public Policy

Tilting at a Windmill
David Arisitzabal
Keywords: Affect; Ethnography; Identity

Activism at Earlham: Histories, Tools and Strategies
Katherine Birdsall & Maria Adamson
April 24, 2:30 pm

**Bond Around the Heart**

Bond Around the Heart is a Earlham tradition held in honor of Byron Bond, a direct descendant of Quaker pioneers. He lived in Richmond for most of his 93 years. Prior to his death in 2000, he committed his entire estate to go to the Wayne County Foundation for the benefit of Earlham College.

The Bond funds go directly to scholarships and financial aid. However, when asked how he wanted to designate his gift, he is reported to have offhandedly said, “I don’t care how Earlham uses the money. They can buy ice cream for the students if they like.” Please join us around the Heart as we celebrate his philanthropic spirit and our student accomplishments with ice cream!

**Congratulations to our student presenters!**
Abstracts
(Listed in alphabetical order of first author)

Exploring Theatre for Change
Maria Adamson, Bita Baligh, Henry Bateman, Catherine Blencowe, Abigail Burns, Michelle Ehrhardt, Eric Frysinger, Claudia Greene, Nick McClaran, Elliot Palmer, Lirit Pendell, Mallory Ward, and Ted Wright
Faculty Advisor: Lynne Perkins-Socey

Part 1. Panelists will discuss the pre-production process theatre artists go through to clarify goals and strategize the most effective ways to engage the audience, facilitate further learning and discussion, and make resource referrals. This will be done by presenting a visual display for SPEAK TRUTH TO POWER which provided information pertinent to the testimonial nature of a production in which biographical and historical information can have a significant impact on the audience. Discussion of key points will be followed by a Q&A session.

Part 2. We will be performing a section of Speak Truth to Power by Ariel Dorfman. This is an example of testimonial theatre which we believe is an important element of Theater for Change. With this, we will be discussing production elements including the actor/audience relationship and production choices.

Part 3. Panel members will demonstrate samples of various forms of interactive theater techniques. Possible forms include living sculpture, forum theater, structured improv, collective storytelling, “playback” and/or theater games. Audience members will be exposed to a range of the artistic possibilities within theater for change. These sample performances will touch on relevant social issues.

Part 4. After researching, designing and performing Theatre for Change, the final step of the process is to evaluate the effectiveness of the performance. We have considered many aspects of the evaluation in order to make a complete review of the process. First, we developed methods for collecting feedback and information about the audience reaction to the performance. Possible methods for gathering information include surveys, talk-backs and impromptu discussions. Second, we set out to interpret the information gleaned. This information consists of the audience reaction to the performance, the reactions and interpretations of cast members and others to the show and dialogue between members of the cast and audience. Finally, we synthesized the results of our efforts to optimize our strategies for presenting Theatre for Change to the Earlham College audience.

Keywords: Theatre; Purpose; Collaboration
"Why Should I Take Meds for Being Who I Am?": The Moral Careers of College Students with ADHD
Oto Ricardo Alves da Silva
Faculty Advisor: Deborah Jackson

Attention Deficit Disorder is a mental condition very commonly diagnosed in North American children. The neurological model for understanding ADHD, in which chronic inattention and hyperactivity are objects of medical intervention, is the most employed model by educators, health professionals and parents alike. Based on semi-structured interviews with six college students diagnosed with ADHD, I explore some of the challenges of college students who live with an ADHD diagnosis. Inspired by IP Ervin Goffman’s concept of moral career, I present how these individuals negotiate their diagnosis, face the medicalization of their own selves, and construct their identities, analyzing their insights and narratives on ADHD through three axis: (1) the subjective construction of a spoiled identity, (2) the navigation through different institutional contexts and (3) medicalization. Drawing from the history of the construction of ADHD as a medical category that legitimized the deployment of amphetamines in the control of child deviant behavior, as well the testimonials of my interviewees, I finally present ADHD as a medical condition whose manifestation, rather than being biologically homogeneous, is institutionally-bound.

Keywords: AD/HD; Moral Career

Concealed Carry Across Borders
Gilbert Ambler
Faculty Advisor: Thor Hogan

Currently 49 out of 50 states allow in some capacity or another, concealed carry of firearms by permit holders. Each state creates individual requirements for what a permit holder has to do in order to carry a weapon. The current system has complicated, and constantly changing agreements between different states about which other state’s permits will be recognized within a given states borders. For example, a concealed carry holder from Indiana cannot legally carry a concealed weapon on their person, or in their vehicle in Ohio, but if they get to Pennsylvania, can once again carry their weapon. This poses obvious problems for anyone who travels with a concealed carry permit. This project proposes nation-wide reciprocity agreements between all states in order to allow concealed carry permit holders to legally carry anywhere in the United States, with the knowledge that their home state’s permit will be recognized as valid.
In 2011, Charles Murray, author of the *Bell Curve* and fellow at the American Enterprise Institute spoke at Earlham College. During his visit, two fire alarms went off, the first one interrupting his talk, the second interrupting the reception that followed. To avoid falling in yet another moralizing account of what happened, this paper assumes a fictional approach based on archival and ethnographic research to Murray’s visit to Earlham College. This paper focuses *inaffect*—more specifically in affective attachments—in order to avoid the trap of a sovereign subject, that is, a subject always accountable in terms of a rational calculation, always in place, or moreover, the drama of a sovereign structure always determining the actions of individual. This paper does not argue for a point in between either, instead, through the use of fiction it attempts to enter the realm of the imaginary, of a kind of fantasy in relationships and in attachments; a fantasy in sovereignty that cannot be accounted for in terms of a causal explanation, yet has long been necessary in order to articulate a theory of identity.

Keywords: Affect; Ethnography; Identity

**Exploring the Peace Encyclopedia**
Ivan Babic, Kamil Hamid, Arielle Hawney, Mizuki Kondo, and Juan Pablo Rabanales
Faculty Advisor: Welling Hall


As a product of OIEP (The Oxford International Encyclopedia of Peace) favorable reviews, this four volume work with 850 entries can be founded in many libraries and other reference collections. Because OIEP is a leader in its field, making a printed booklet/supplement to the Encyclopedia to act as a teaching aid to the Peace Studies at all levels would be extremely helpful and beneficial. This semester, with help from MAT faculty, Ford-Knight students are involved in the process of creating lesson plans based on selected articles from OIEP.

Keywords: Peace; Encyclopedia; Publishing

**Paper 2. Expanding the Geographical Network of Contributors**
The creation of a network of peace research and practitioner connections that students at Earlham might have will allow the coverage of the encyclopedia to expand its content by establishing connections with possible contributors for new entries and visual data for the encyclopedia. It would also allow the possibility of increasing coverage of topics and issues outside of North America and Europe, the creation of subsequent editions in languages other than English and support future projects that Earlham might carry on. The creation of this network can benefit, not only the The Oxford International Encyclopedia of Peace and Earlham College, but also possible contributors and current Earlham students.

The current Oxford International Encyclopedia of Peace lacks visual content, yet there is an abundance of peace images that exists: symbols, monuments, photographs, paintings, etc. in collaboration with the museum curator at SOMArts in the Bay Area, the images project is taking shape as the creation of an interactive online catalogue of peace images. It is this process, and the desired end product, which we will present, focusing on issue of acquiring copyright permissions for visual images.


The goal of this project, which bridges student-faculty collaborative research and interdisciplinary collaboration, is to take advantage of Earlham’s designation as the new headquarters of the Oxford International Encyclopedia of Peace to dramatically increase the encyclopedia’s coverage of the peace – sustainability nexus in future editions (and to involve Earlham undergraduates in the preparation of this significant publication which enable them to bridge theory with practice, in a unique way, by taking an active role in research, implementation, and editorial decision making). The primary benefit of this consultation to the Earlham, Richmond and regional community is that we, students, colleagues and communities will have the opportunity to interact with internationally and regionally known experts on the peace-ecology nexus.

**LittleFe - The Educational Appliance for Parallel and Cluster Computing**

Ivan Babic, Kristin Muterspaw, Elena Sergienko, Ben Yee, and Henrish Maluleka
Faculty Advisor: Charlie Peck

Many institutions and teaching environments do not have access to parallel platforms for parallel and distributed computing education. Teaching key concepts such as speedup, efficiency, and load balancing are much more effectively done on a parallel platform. LittleFe is a complete 6 node Beowulf style portable computational cluster which supports shared memory parallelism (OpenMP), distributed memory parallelism (MPI), and GPGPU parallelism (CUDA). LittleFe easily and safely travels via checked baggage on the airlines, and sets-up in 10 minutes. By leveraging the Bootable Cluster CD project, and its associated curriculum modules, LittleFe makes it possible to have a powerful ready-to-run computational science and HPC educational platform for less than $3,000. It has been a busy year for the LittleFe and BCCD projects. With support from Intel and others we have been able to continue to develop our hardware and software platforms, distribute additional LittleFe units to colleges and universities across the United States, and host programming contests at a number of conferences and events. At this time, there are close to 100 LittleFe units in the field making HPC education more accessible at all levels.

Keywords: LittleFe; BCCD; Education
National and International Discourse Around Domestic Violence in China
Genevieve Beck-Roe
Faculty Advisor: Marya Bower

In China, economic and social reforms in the later half of the twentieth century, as well as the influence of the international community, have impacted traditional Chinese values, including hierarchical male/female relationships, the legitimization of violence towards women, and familial privacy. I intend to research the interplay in China between traditional values and state policy on the one hand, and international gender and human rights discourse on the other. This tension will be analyzed through a study of domestic violence in China. Domestic violence highlights traditional values at the micro level of the family, and intersects with reform culture at the macro level of national and international legislatures. The Chinese conception and response to domestic violence will be studied through state-funded news sources within mainland China, privately-funded US news sources will provide a second-party national view, and documents from United Nations agencies will serve as an international perspective. With this project I hope to elucidate how domestic violence is framed as a problem specific to China, and the means the state is undertaking to combat the issue. I am further interested in the ways in which this stands with/apart from the international agenda regarding locating and ending domestic violence.

Keywords: China; News; Domestic Violence

Activism at Earlham: Histories, Tools and Strategies
Katherine Birdsall and Maria Adamson
Faculty Advisor: Barbara Caruso

Over the past year, we have collected oral histories of faculty, staff, current students, and alumni of Earlham with the goal of creating a resource guide for current and future student activists and organizers. In this presentation we will share interview excerpts as well as trends we've noticed through our analysis regarding student organizing throughout Earlham's recent history. We will explain our process and framework for this project as well. We will have the resource on hand for people to explore after our presentation.

Library as Career Incubator: Developing Future Professionals via Undergraduate Mentoring, Alumni Networking, and Work Shadowing
Sarah Brown-Anson and Brian Forman
Faculty Advisor: Amy Bryant

Learn how the Kenlee Ray Library Fellows program fosters undergraduate students exploring interests in library science related career opportunities. Through a combination of immersion experiences, alumni networking, reflection on scholarship, and job shadowing, students gained a broad exposure to academic librarianship and developed a launching platform for their future careers. The two student participants will share their experiences exploring work in library instruction, technical services, archives and attending and presenting a poster at the Association of College and Research Libraries conference. They will also comment on projects they worked on in the library including redesigning signage for the library, creating library guides for classes and blogging about their scholarly readings.

Keywords: Libraries; Archives; Mentoring
Environment vs. Economy: China’s Evolving Stance on Environmental Policy
Holden Bucher
Faculty Advisor: Marya Bower

China’s rapidly developing economy and society have brought along with them a great need for newer and better land developments to house businesses, people and to improve outdated Chinese infrastructure. In doing so, China has been faced with the ultimatum of placing importance on these land developments or choosing instead, to better protect the Chinese environment. Up until the very recent past, China has made it very clear that economic and infrastructural developments are above other environmental concerns, but this view seems to be changing alongside the Chinese public’s growing environmental awareness and concerns. Using a multi-perspective approach, I investigate the ways in which environmental policy and related current events are reported upon and viewed in the Chinese, American, and other foreign news media. I hope to uncover the motivations for the way that each news source portrays these issues and to whom these news articles are intended. The goal of this investigation is to make clear, or at least to try and make clear, the attitude that China now has in regards to environmental policy alongside economic development and also, to be able to postulate how China plans to proceed with these issues in the years to come.

  Keywords: Environment; Media; China

Dawn of the Fifth Generation of Chinese Communist Leadership
Alexander M. Burns
Faculty Advisor: Marya Bower

The Chinese economy has been experiencing what economist refer to as an economic miracle for most of the past two decades. This means that the People’s Republic will continue to have a larger role in international politics. It is common knowledge that the Chinese government censors China’s own media, however there are many other forms of censorship which manifest themselves in the Western media. I will focus mainly on the portrayal of the rising communist leader Xi Jinping, the remainder of the Standing Committee of the Politburo, and the people who helped them rise to power. Many popular Western media outlets like to refer to Xi Jinping as a “Princeling”. However, the Chinese state-controlled media prefers to refer to Xi Jinping as a man of the people, one who is above the political fray. My aim is to study the portrayal of the Chinese leadership through the lens of the news media, from sources in China, the western world, and the Middle East. I hope to reveal as much as possible about the new man in charge of China and its economy, and bring to light the biases that are present in our news sources.

  Keywords: China; Media; Xi Jinping

Are Guns the Problem in America?
Andrew Cain
Faculty Advisor: Thor Hogan

After the Sandy Hook shooting millions of American’s including politicians, and President Barack Obama called for stricter regulations on guns, ammunition, and how people can acquire them. This type of legislating instantly received opposition from millions of
American gun owners who felt that their Second Amendment Right has been violated by politicians who have their own political agenda to get rid of their guns, and are exploiting normal citizen’s emotions after the Sandy Hook tragedy. With competing views about whether or not guns are the problem, and if taking them away or restricting them will solve gun violence in America, I decided to try and answer just that with this research paper.

Keywords: Guns; Rights; Violence

**Reclaiming Tomorrow: Reshaping the Framework of US Educational Policy Through Alternative Education Methods**

Jack Cape  
Faculty Advisor: Welling Hall

Today’s youth are facing unprecedented challenges as they muddle through our media-infused and rapidly changing world. Education is coming under increased attention as a key source of support and guidance for children as they enter into the challenges and uncertainties of adolescence and young adulthood. Our public school system is failing to appropriately address the needs of a growing child, with too much emphasis placed on standardized testing, and not enough focus on creative and critical thought. Over the past decade, scholars have been engaged in a dialogue regarding the incorporation and implementation of alternative forms of education into the public school system, in an attempt to remedy the aforementioned problems. Waldorf education—introduced in the late 1800s by Austrian philosopher Rudolf Steiner—has been found to contain key curricula initiatives that have been proven to boost both creativity and critical thinking skills. In this paper, I will discuss the current shortcomings of the US public school system, detail the benefits of certain portions of the Waldorf curriculum, and recommend the adoption of certain education policy alternatives in order to provide a brighter future for the United States.

Keywords: Education; Policy; Reform

**Reporting Cyber Conflict: News Media Representations of Cyber-Tensions Between China and the United States**

Roger Clayton  
Faculty Advisor: Marya Bower

Earlier this year, the United States openly accused the Chinese government of directly backing damaging cyber-attacks against U.S. companies. In the time since that accusation, questions regarding proper conduct in cyber-space have received significant attention in news media from both China, and the U.S., and elsewhere. In my research, I have observed how different news media have reported on the cyber-tensions between the U.S. and China. My poster provides an analysis of differences in the ways news media sources frame the issue based on their location. My primary focus in this analysis is on discerning differences between Chinese and U.S. news reports on the issue, however, in addition to viewing media sources from the U.S. and China, I have also observed *Al Jazeera English* as a third-party perspective.

Keywords: China; Media; Power
An Examination of Takashi Murakami's Superflat Through Portrayals of the Characters Kaikai and Kiki
Ashley Cochran  
Faculty Advisor: Susan Furukawa

Since 2000, contemporary Japanese artist Takashi Murakami and his Superflat exhibition have played a large role in the contemporary Japanese art scene and how that art has been viewed outside of Japan. However, despite his influence and acclaim, most of what is written about Murakami is focused on contextualizing Murakami as a global artist or as a businessman. They write about who he is and the place he is trying to make for himself in art history. They may discuss the theory accompanying the catalogue for Superflat, a theory of flatness and digitalization that blurs the distinctions between “high” and “low” art and attempts to create a lineage between contemporary and traditional Japanese art. However, there has been little discussion of how this theory is reflected in Murakami’s own work. This attempts to fill this gap by examining Murakami’s Superflat theory in terms of a pair of also understudied characters that occur repeatedly throughout Murakami’s works.

Keywords: Pop Culture Studies; Japanese Studies; Japanese Popular Culture

Prioritizing Prevention: A Call to Increase Federal Spending for Combination HIV Prevention Programs in the United States
Lily Cutler  
Faculty Advisor: Thor Hogan

Despite progress treatment for those living with HIV/AIDS there remains the dire reality that every 9.5 minutes another person in the U.S. becomes infected with HIV and that each year 14,000 people in the United States die from AIDS (PEPAR). Although federal HIV/AIDS funding has consistently increased, there remain limited resources allocated to prevention. While the overall 2013 budget of Federal Funding for HIV/AIDS is a record $28.4 billion, only $.96 billion or 3 percent of this budget is used for prevention (KFF). The development of combination prevention has exponentially increased the effectiveness of potential prevention programs. Combination prevention reduces HIV transmission through carefully created packages made of behavioral, biological, and structural interventions targeted to meet the needs of specific populations. Current domestic combination prevention programs are very limited and outdated; a doubling of the existing budget for prevention would allow combination prevention programs to be widely implemented, updated and better catered to their target population, with priority given to high-risk regions and demographics. An investment in the prevention of HIV results in fewer individuals infected and decreased demand of higher cost government care and treatment programs, which currently total 55% or $15.6 billion of federal HIV/AIDS funding (KFF).

Keywords: HIV/AIDS Combination Prevention; Public Health; Federal Funding for HIV/AIDS
Measuring ultrasonic characteristics of cells outside the cellular matrix is of interest. Analyzing these properties at the cellular level may identify qualities specific to a cell type, possibly leading towards cell identification and disease diagnosis without invasive techniques such as biopsy. The purpose of this research is to develop a reliable method of examining cellular characteristics using quantitative ultrasound. Measurements were made using single element transducers at frequencies of 5-50 MHz in a controlled water-tank environment. Speed of sound and attenuation were measured using through transmissions with unfocused transducers, and backscatter was measured using pulse/echo transmissions with focused transducers. To test our experimental techniques we measured high-frequency properties of a tissue mimicking phantom and compared the results to the current standards. As our experiment required testing at a smaller scale than previous tests of these methods, we also created small holding tubes with smaller phantoms to compare the larger sample measurements. These miniature phantoms show a remarkable consistency in the data obtained when compared to a large phantom, which verifies the applicability of the methods on a small scale.

Keywords: Ultrasound; Phantoms; Backscatter

And You Thought It Was Over: Bullying in Elementary School and College
Laura Donohue
Faculty Advisor: Rachael Reavis

Being bullied may affect one’s ability to appraise social situations. 5th and 6th graders and college students read either positive, negative, or neutral social situations and rated how they would feel during each situation. Participants then read ambiguous social situations and appraised them (stated their expectations for a positive or negative outcome). Participants then answered questions concerning their bully/victim history. I hypothesize that participants who are primed with negative social situations will have negative expectations of social interactions. This effect will be amplified if the participant has a history of being victimized. It is important for studies such as these to be conducted in order to understand both the long and short-term effects of victimization.

Keywords: Bullying; Cross-Developmental; Social Appraisal

Better Off Alone? How Social Goals Influence Perceptions of Friendships
Laura Donohue and Lina Hegazi
Faculty Advisor: Rachael Reavis

Loneliness and rejection has a profound effect on human beings. The feeling of belonging is believed to be a fundamental need to living well. When this need is not fulfilled, serious psychological consequences follow. Do these psychological consequences depend on people’s social goals? In our study, a baseline of feelings of loneliness was taken. Participants then played the notgame Loneliness, in which they moved a cube across the screen in the attempt to either make contact with other cubes, or to avoid them. Regardless of
the provided goal, the cubes were programmed to avoid the person-controlled cube. Participants were then asked how they felt during the notgame, how they perceived their friendship support, and rejection sensitivity to vignettes. We were interested in how the provided social goal interacts with perceptions of friendship support and rejection sensitivity.

Keywords: Rejection; Loneliness; Friendship Support

Money Makes All the Difference: The Effects of Exposure to Money on Helpfulness
Laura Donohue, Xan Smith, Ashley Chabot, Arielle Webb, Kathleen Bolan, and Lena Flores
Faculty Advisor: Rachael Reavis

Money makes people think differently, that’s for certain, but does it make us less helpful? Voh’s et al. (2006) found that when participants were exposed to high amounts of money, participants were less helpful in completing a extra data entry task for the experimenter. The same effect was achieved with mere Monopoly money. However, these findings have been disputed by investigators who have failed to replicate these findings. We are interested in why replications have failed, and in creating conditions in which replication may be achieved.

Keywords: Money; Helpfulness; Replication

Preliminary Soil Mineralogy of the Haghtanakh 3 Site, Northern Armenia
Ikumi Doucette
Faculty Advisor: Cynthia Fadem

Field pedology of the Lower Paleolithic Haghtanakh 3 archaeological site located on a volcanic bluff near the Debed River revealed a series of paleosols rich in precipitates. The excavation trench provided a combined soil profile of approximately 4 meters in deep. This profile will serve as a detailed paleoclimate record possibly spanning the last 1.8 Ma of the Lori Depression. We are currently conducting x-ray diffraction, and organic carbon, sulfate, phosphate, and carbonate content analyses of soil profile samples to better understand their mineralogy and chemistry. Initial XRD results indicate precipitates are composed of calcium phosphate and carbonate rather than sulfate. This mineralogy speaks to a soil chemical environment very different than hypothesized and has implications for the soil's faunal artifact preservation potential. Some samples also contain allophane, which - coupled with ash found in soil micromorphological samples from a neighboring site - indicates the deposition of volcanic ash at the site and possibly throughout the region. Future soil laboratory analyses will continue to address soil formation as well as seek to understand the flow of water across and through the bluff, and the physical and chemical interaction of the sizable soil precipitate deposits with Lower Paleolithic artifacts.

Keywords: Geoarchaeology; Soil Mineralogy; Paleosol
Human Space Exploration
Dylan Drooger
Faculty Advisor: Thor Hogan

Why do we no longer send people into space? Why has our vision for human space exploration dwindled? There are several problems fueling this lack of drive and vision for our national space efforts. The first is the monetary cost of sending material and astronauts into space. Many claim to support NASA and what they do, but are very hesitant to support projects with actual capital. The second is the inherent danger in sending explorers into one of the most hazardous environments known to us- space. With disasters like Challenger and Columbia making people wary of human expeditions in space, safety becomes a much more serious concern. And thirdly, many people do not think there is a reasonable point to send humans into space to explore or mine. To solve these problems, we need to implement a policy that will radically change the way we see space flight, not as something that requires massive amount of resources and even more danger to the astronauts; but instead see it as a launching point to a new future for humanity.

Keywords: Space Policy; Human Space Exploration

Ceramic Petrology and Soil Micromorphology of the Danilo Bitinj and Pokrovnik Sites, Dalmatia, Croatia
Robert Endicott and Imogene Ellis
Faculty Advisor: Cynthia Fadem

Ceramic petrology and soil micromorphology of the Danilo Bitinj and Pokrovnik sites, Dalmatia, Croatia Ongoing analysis of materials from the Danilo Bitinj and Pokrovnik sites is part of the Early Farming in Dalmatia Project, an interdisciplinary effort toward understanding the origins of European agriculture. These Neolithic sites host ceramic, faunal, and lithic artifacts. Danilo Bitinj is the type-site for the Danilo Phase of the Middle Neolithic. As such it has long been recognized for its archaeological significance and appreciated for its rich ceramic record. Earlier work on ceramic samples and thin sections yielded a typology based on paste and temper attributes. Spectroscopic and petrologic analyses focused on fabric type, mineral inclusion type and diversity, and inclusion size. Preliminary petrologic and x-ray diffraction analyses indicated ceramic raw materials may have been sourced on-site. Our current work expands this investigation to include a high-resolution soil XRD dataset and further soil micromorphology. We are also re-examining ceramic thin sections and using appearance in thin section and bulk mineralogy to compare natural and cultural materials. Petrologic analysis confirms mineralogical uniformity amongst soil and ceramic samples, the chief constituents being quartz and calcite.

Keywords: Soils; Croatia; Geoarchaeology
Mapping Miller Farm
Sam Fordyce
Faculty Advisor: Cynthia Fadem

Miller Farm is located on roughly 40 acres of land along the Whitewater river. A digital elevation model produced from differential GPS data will form the basis for an educational sign and map displayed at the farm's entrance, highlighting the farm and surrounding forest, marshes, streams, and historical ruins. This educational display, funded by Earlham College's Student Action Research Grant Initiative, will raise awareness of the farm's rich heritage and resources, and encourage community participation in the farm's programs. We used a Magellan DGPS to collect elevation and location data, and processed them in ArcGIS. Our digital elevation model will be printed on a durable outdoor signboard, along with background information for and photographs of the features highlighted on the map. This project is an interdisciplinary effort of Earlham's Miller Farm, Geology Department, and Center for Environmental Action, combining collection of field topographic data, processing in GIS, and exhibit design with the goal of encouraging and welcoming visitors to explore the farm.

Keywords: GIS; Mapping; Farm

Cartographic Representation of Paris c. 1600-1715 and the Transformation of the Early Modern French State
Brian Forman
Faculty Advisor: Elana Passman

The linkage between cartography and the standardizing and centralizing tendencies of the newly developing nation-states in early modern Europe is a topic which remains underdeveloped within both the fields of geography and history. While scholars have analyzed the role early modern European cartography played in the development of modern nation-states, little research has been done regarding what exactly the state was learning through these maps. In an independent research project undertaken through the ACM's Newberry Library Program, this paper/presentation highlights how 17th century French maps of Paris presented images that in the long-term clouded the state’s perception of its population and shielded it from local conditions whose documentation was the original impetus for its patronage of cartography. An ironic by-product of state formation formed as an attempt by the early modern French state to understand the city ultimately left it even more unaware. In addition to providing important research within the field of early modern European cartography, this paper/presentation also serves to highlight the role knowledge plays in both the development and maintenance of a state apparatus.

Keywords: Cartography, State, Early Modern France
The Effect of Projected Japanese Identity on the Education of Japanese-Brazilians and Kikokushijo
D. Lynne Francis
Faculty Advisor: Susan Furukawa

An Interdisciplinary View on Japanese Studies
Japan’s minority populations have grown since the 1970s, and have become integrated into the education system. Japanese-Brazilians and kikokushijo (Japanese returnee children) stand out from other minorities because of their Japanese heritage. However, the treatment of the two groups in education differs greatly, favoring kikokushijo students over Japanese-Brazilian students. “The Effect of Projected Japanese Identity on the Education of Japanese-Brazilians and Kikokushijo” aims to use three different authors’ surveys of what Japanese people consider Japanese traits to compare the Japanese attributes of both groups. It (the paper) discusses how these traits combined with Japanese perceptions of the two minority groups’ associated foreign countries, and the economic situations of both groups, and shows how and why the Japanese education system favors kikokushijo over Japanese-Brazilians. This inequality brings forward the struggle of whether the educational system should offer help for minority students, or continue in a “need-blind” structure.

Keywords: Japanese Identity; Imperialism; Language Ideology

China's Water Problem
Annie Frodeman
Faculty Advisor: Marya Bower

Water will soon become the world’s most valued resource. If they haven’t already, nations around the world will have to think seriously about how to conserve and clean their water supply. China is currently listed in the top thirteen countries who have a serious water scarcity problem. This is accentuated by a huge population of 1.34 billion people and a lack of environmental standards which ensure water quality. I have been exploring China’s need for water and their future plans to deal with water scarcity. To better understand the extent of China’s water problem, I will look at news media from several sources inside and outside China. This will allow me to see the official Chinese government’s approach, the perspective of the Chinese people, along with reactions from the international community. One area I plan to focus on is the South-North Water Transfer Project. This project involves the damming of several major rivers and has caused intense international debate. In my poster, I hope to display the extent of China’s need for water and analyze proposed solutions from the perspective of national and international news media.

Keywords: China; Water; Media

Eye Spy: Empathy in the Eye of the Beholder
Clare Gamble
Faculty Advisor: Katharine Milar

This study focused on the pupillary response related to empathy. There were 35 college student participants, 15 males and 20 females. Pupillary responses were recorded and measured during presentation of neutral (man, woman humming, baby cooing) and negative (man, woman, baby crying) auditory stimuli. After each stimulus presentation, participants
rated their emotional response and the emotional state of the individual in the stimulus. Results showed that the gender of participant had no effect on pupillary response. However, there was a significant increase in pupil dilation and decrease in pupil constriction during negative stimulus presentation. The difference in emotional ratings of self and stimulus between neutral and negative stimuli was significantly smaller for the male stimulus than the other person types. This suggests that negative stimuli increase change in pupil diameter.

Keywords: Empathy; Pupillometry

The Mysterious Effects of Music
Andrey Gavrilov, Mikel F. Qafa, and Jinhee Kim
Faculty Advisor: Mic Jackson

Everyone is unique in the kind of music they listen to, but without doubt, music is part of everyone’s life. We all listen to music and decide whether we like a particular music we’re listening to, but we almost never think what happens in our brain when we listen to a piece of music. Several previous researches show that it is hard for our brain to comprehend even the simplest music tunes, and this makes our brain work harder. Our aim in this project is not to discover and describe what happens in our brain when we listen to music, but we were interested in exploring the effect of music on our performance. Since the brain requires extra work to comprehend the music, does this mean that we are only giving our brain extra work and therefore it will get tired quicker as we work on something else as well? Many students listen to music while they study thinking that it is relaxing, whereas to some other this is very distracting. Does listening to music help us think faster and make us focus better? Or is this all just a belief sold to people by the music industry.

Keywords: Music; Performance; Brain

Raising the Standard- Alternative Standardized Testing Policies in Education
Logan Goodwin
Faculty Advisor: Thor Hogan

While standardized testing in the United States education system could be a positive procedure, it needs to go through areas of improvement to be able to show desired results. Standardized test as they currently stand cause issues for both students and teachers. Students who cannot pass the test do not get to graduate, and since that standardized test is the basis of judging the knowledge they have gained, they have nothing to fall back on so they can be successful. The tests also focus on what can be consider basic math, science and writing skills, and while important, they lack the important concept of teaching and testing critical thinking. Teachers could be limited to less useful teaching styles because of standardized testing. Raises being based on test scores may put off potentially great teachers from pursuing careers in education. My policy alternatives for standardized testing will focus on adding ways to test critical thinking and improve current test, provide alternate test for students that have disabilities that could not graduate otherwise, and allow for teachers to teach to the best of their ability while also allowing for incentives to draw in teachers that could drastically improve the U.S. education system.

Keywords: Education Reform; Standardized Testing; Critical Thinking
Molecular Dynamics Studies of Z[WC]-DNA and the B- to Z-DNA Transition
Alma Gracic
Faculty Advisor: Michael Lerner

Although DNA is most commonly found in a right-handed helical structure known as B-DNA, it is known that biologically active systems also contain left-handed helices called Z-DNA. However, there are many open questions regarding the biological role of Z-DNA, and it is particularly hard to obtain experimental results under biochemically reasonable conditions. Our aim was to assess both the stability of Z[WC]-DNA (predicted by Earlham alum Allen Ansevin!) and to investigate the role of Z[WC]-DNA as an intermediate structure in the B-DNA to Z-DNA transition. Using RMSD as a reaction coordinate and the AMBER force field, we perform several steered molecular dynamics (SMD) simulations of both B --> Z and B --> Z[WC] --> Z transitions for short, explicitly-solvated strands of DNA neutralized with monovalent ions. We find that Z[WC] pathway involves a lower barrier, indicating that Z[WC]-DNA may be a kinetically favorable intermediate. The physical simplicity of the B to Z[WC] transition provides further argument for the potential biochemical relevance of Z[WC]-DNA. More rigorous simulations (including umbrella sampling and perhaps divalent ions, as well as larger DNA systems) are needed.

Keywords: Molecular Dynamics Simulations; Z[WC]-DNA; B- to Z-DNA Transition

Tissue Engineering from Bench to Bedside: Ethical Considerations
Emma Grygotis
Faculty Advisor: Marya Bower

Tissue engineering is a promising new field of research that may lead to dramatic improvements in medical care by allowing for the integration of a replacement tissue or organ with a patient’s own healthy tissues. Although such methodologies have been under extensive laboratory investigation for several decades, their widespread clinical application has been slowed by the lack of ethical and legal frameworks to guide the regulation of medical usage. For tissue engineering to reach its full potential, the ability to transition from preliminary research to human medical trials is essential. This cannot be done, however, without careful consideration of the safety and well-being of patients. In this poster, the example of tissue engineered products for the treatment of non-healing skin wounds is used as a case study to explore the ethical questions surrounding this process: What are the goals and methodologies of an ethical approach to tissue engineering? What regulatory procedures will both protect patient rights and allow for the development of improved treatments? The answers to these questions will guide the future research and regulatory decisions of an increasingly globalized society and are an important consideration for scientists, policy makers, and patients alike.

Keywords: Tissue Engineering; Human Medicine; Ethics
Partisan Identity Shift: The Dawn of a Democratic Revolution
Conor Hall
Faculty Advisor: Thor Hogan

What are the conditions that affect partisan identity shift in a state? This question holds great import in predicting future electoral outcomes. While there are many variables that effect degrees of partisan change, both contingent (Johnson, 2005) and structural (Bejarano & Segura, 2010), the independent variable that is increasingly important is that of demographic shift. When, if ever, will demographic shifts trump all other conditions or factors affecting change in partisan identity of a state? Demographic shifts will play an increasingly important role in determining state partisan identity as minority populations continue to increase to levels of significant influence and as traditionally Democratic populations migrate to traditionally Republican states. In examining Texas and New Mexico I expect to find that if the right conditions are met (continuing demographic trends, greater voter registration and education, steady group partisan identification, etc.) these two states are ripe for potentially decisive partisan identity change, albeit on different timelines. The implications of America’s rapidly shifting demographic makeup are widespread and will play a significant role in determining the political future of the country.

Keywords: Partisan; Shift; Demographics

Factors Affecting Nesting Times in the Western Painted Turtle (Chrysemys picta bellii) in Western Nebraska
Kate Hardy
Faculty Advisor: John Iverson

Observations on the nesting times of the western painted turtle (Chrysemys picta bellii) were made in Crescent Lake National Wildlife Refuge, Garden County, Nebraska in June 2012. Amount of time for finding nest site, nest construction time, and total nesting time were recorded for each female. The average construction time for the first clutch of the season is almost significantly longer in duration than the second clutch. Additionally, larger females spent less time looking for a nest site. Larger females are typically older and have more experience nesting which could lead to faster decision making abilities. Construction time and total nesting time were not affected by body size. Larger females produce larger clutches than smaller females. As a result of large clutch size, larger females must dig a larger nest cavity, which slows their construction time down despite being possibly stronger and faster diggers.

Keywords: Turtle; Behavior; Reproduction

The Modification of Iraqi Citizen Rights by US Occupation: Political Theory, International Law and Public Health Perspectives
Arielle Hawney
Faculty Advisor: Welling Hall

In this essay I explore issues pertaining to the intersection of military occupation and the practice of citizen rights in the Middle East in the 21st century. Specifically, I consider the question: Is it possible for foreign occupation to enhance citizen rights of the occupied?
Through the lenses of Political Theory, International Law and Public Health, I consider how each of these disciplines approaches occupation and citizen rights. I use both qualitative and quantitative research methods to inform my analysis. Using the 2003 US invasion and occupation of Iraq as a case study, I then look at the effect of occupation upon citizen rights of the occupied, arguing that occupation negatively modifies citizen rights. I conclude by stating some of the consequences of and lessons to be learned from the effects of occupation, as well as recommendations for both intellectual pursuits and policy.

Keywords: Citizen Rights; Military Occupation; Iraq

**Writing Instruction in Wayne County High Schools**
McKayla Heller  
Faculty Advisor: Randy Wisehart

Academic standards are steadily increasing. Teachers and administrators want to prepare students for college and career success. One of the best things they can do to achieve this goal, I argue, is to focus on the ways high school students are taught to write. Beginning with an introduction to the ground-breaking methods of English teachers Nancie Atwell, Kelly Gallagher, and Tom Romano, this project explores the way writing is taught in high schools and, more specifically, in Wayne County. The influence of class size, student identity, standardized tests, academic standards, and teacher evaluations in the learning environment are explored in depth. Guests will come away with a more complete picture of what affects the classroom, teaching techniques and activities for the writing classroom, and an appreciation for the benefits of student writing in all classrooms.

Keywords: Writing; Composition; Pedagogy

**The Effect of Chivalry on Merchant Values in Medieval England**
Olivia Hunter  
Faculty Advisor: Elana Passman

The opposing goals and values of the emerging urban bourgeois class and the landed gentry in Medieval England appear to be rigid and unchanging. However, though the spheres of the court and the city seem to have been markedly separate, they were actually connected by a code of conduct. In this paper I make the case that merchants in Medieval English cities imitated chivalry, which was an ethical code originally applicable only to knights. English merchants aped knights and other members of the landed elite by buying estates, marrying into the gentry, using the knightly mode of identification, reading books where merchants ascended into the landed class, and increasing their use of chivalric display. Even merchants’ children imitated knights, a sure sign that this ideal had permeated merchant society. The urban elite could have been adopting the nobility’s social code for a number of reasons, but one likely possibility was their desire to gain social status. My paper attempts to capture a moment in time where the political and economic power of the noble class was diminishing while their social ideals lived on in the rising bourgeoisie.

Keywords: Medieval; City; Chivalry
Corruption in Modern China
David Jones
Faculty Advisor: Marya Bower

China’s rise to prominence as a world power has brought with it increased media attention from around the world. This increased media coverage in China has shed light on many domestic issues in China. Among them corruption is a prominent issue. A glaring example of this would be the case of Li Jianguo, a top official who, secretly, gave his nephew a top position in the party. Many members of the Chinese political elite have faced controversies related to corruption, indicating a pervasive issue. Data collected from news media thus far hints towards an increased level of intolerance of Chinese corruption reported on outside of China. Commentary expressed is typically negative while in Chinese media factual information is accentuated instead of emotional language. I will compare the three news sources with different geographical origins to explore their altitudes in reporting about corruption in China. In my research, the differences between the stories will help to illuminate the reality of how corruption is treated in China. The knowledge gained from this project will hopefully convey a message that familiarizes others with the presence of corruption in China and how it can be viewed across societies.

Keywords: China; Corruption; Media

Gender Roles in German Fantasy Literature for Children and Young Adults
Alina Kanaski
Faculty Advisor: Margaret Hampton

Gender roles within a society are important indicators of conceptions that society has of gender. Gender roles are therefore an ideal aspect of society to analyze to determine how men and women interact with society and societal expectations. German fiction was analyzed to determine how gender roles in Germany have changed since 1930. Because both fantasy literature and children’s and young adult literature are genres of literature that often question and subvert societal values, German fantasy children’s and young adult literature was chosen for analysis. Six books were analyzed, published between 1931 and 2003: The 35th of May, or Conrad’s Ride to the South Sea by Erich Kästner, Timm Thaler, or the Traded Laughter by James Krüss, The Satanic Mill by Otfried Preußler, The Neverending Story by Michael Ende, Magic Moon by Wolfgang and Heike Hohlbein, and Inkheart by Cornelia Funke. Analysis of these books showed that there has been a shift in perceptions of gender roles, especially since the women’s movement in the 1970s. There was a much more pronounced change in perceptions of men’s roles; women’s roles remained virtually unchanged over this seventy year period. Only Funke, the most recent author, clearly criticized women’s roles.

Keywords: German Literature; Gender Roles; Children’s & Young Adult Literature
The Ethics of Assisted Colonization
Alina Kanaski
Faculty Advisor: Marya Bower

Assisted colonization is the conservation strategy of moving a species out of its natural range to help it survive changes to its habitat caused by climate change. As the threats posed by climate change have become more apparent, especially in the past five years, assisted colonization has become a hotly debated topic among conservationists. Although assisted colonization has been put into practice several times, perhaps most famously with the conifer Torreya taxifolia, there has been little work assessing its ethical implications. To remedy this, a literature review of texts pertaining to environmental ethics in general and the ethics of assisted colonization in particular was performed. The ethics of this conservation strategy will be analyzed using several theories of ethics, including Rawls‘ justice theory and Leopold’s land ethic. This poster will therefore assess the ethics of assisted colonization by answering several questions: Should assisted colonization be performed? Why or why not? If it is ethically acceptable to perform assisted colonizations, when should they be performed?

Keywords: Ethics; Assisted Colonization; Climate Change

Silence That Does Not Speak: Writing and Speech from Friday to the Fugitive Slave Act and Apartheid
Johnny Kauffman
Faculty Advisor: Scott Hess

In this essay I trace representations of slavery, subjugation, and silence throughout canonical literary history. The critique of the essay centers on the literature classroom in secondary education, more specifically the reading of “marginalized texts” within this setting, and what the effects of this reading might be. Readers of “marginalized texts” I argue, run the risk silencing these voices further as they are absorbed within the “canon.” This critique runs parallel to the resistance to silencing and racial oppression, through what might be called an “absolute silence” or unintelligibility, which appears in Herman Melville’s novella Benito Cereno and J.M. Coetzee’s novel Foe. I began my essay with a reading of Daniel Defoe’s Robinson Crusoe that demonstrates the way silence might be (mis)interpreted, and agency removed from colonized subjects. Additionally, my reading of Robinson Crusoe illustrates the way in which Crusoe’s formation as an individual subject depends on his ability to forcefully turn Friday’s silence into speech. The nature of this formation leaves the individual vulnerable to the resistance that appears in Benito Cereno and Foe.

Keywords: Silence & Speech; Postcolonialism & Postmodernism; Canonicity

Helping Survivors After the Assault
Dylan Kyriacopoulos
Faculty Advisor: Thor Hogan

This is a poster presentation of a policy brief. In the brief I explore the options available for survivors of sexual both domestically and abroad. I then make a recommendation on how to better assist survivors of sexual assault.

Keywords: Policy Brief; Sexual Assault; Survivor Help Centers
Hold Charities Accountable: Regulation Policy on Fiduciary Transparency of Charity in China
Weixi Liang
Faculty Advisor: Marya Bower

China is facing an issue of a quickly increasing number of charity organizations, as well as an increasing of amount of money donated from donators as the result of economic and social development. Large organizations bodies raise people’s concern about the accountability of these organizations. The dilemma of whether the fiduciary transparency of charity is prior to the protection of private information or not caused a substantial divergence of opinion within the country. In recent years, the Chinese government has posted several policies that regulate charity transparency, however it seems more transparency is still needed in China, especially after the scandals in 2008 and 2011, which caused serious damage to the charity credibility. My research will involve the use of different perspectives from a variety of countries’ news media, mainly China, U.S and another Asian country. Case studies will also be included as part of my research. By this project, I hope I find clear answers for the future direction of fiduciary transparency of charity in China, and how the Chinese government should response to the need of charity transparency meanwhile avoiding possible harm caused by the information leakage.

Keywords: Transparency; News Media; China

Countering Transnational Crime Organizations in the Mexican American Border
Joel de Jesus Lozada Yanez
Faculty Advisor: Welling Hall

This project aims to assess current efforts of the bilateral cooperation between Mexico and the United States in dealing the asymmetric threat of transnational crime organizations. Taking the Merida Initiative as its base, this project will assess the current performance of this bilateral initiative, explore its weaknesses and propose alternative solutions to address its present shortcomings.

Keywords: Bilateral Agreements; National Security; Mexico-United States

Ultrasound Characterization of Chinese Hamster Ovary Cells
Aditya Mahajan, Aislinn Daniels, and Yim Rodriguez
Faculty Advisor: Teresa Herd

Ultrasonic characteristics of various tissues are currently not known in enough detail to be used reliably for tissue identification or diagnosis. Analysis at a cellular level as opposed to a tissue level can examine these qualities specific to a cell type. The purpose of this research is to find the ultrasonic tissue characterization of Chinese hamster ovary (CHO) cells to develop a general test for modeling cells. To analyze the characteristics, CHO cells are cultured and prepared into a pellet-sized sample, which are then scanned with single element transducers at high frequencies (5-50MHz). The speed of sound and attenuation of the pellets are measured using through transmissions with unfocused transducers, and backscatter coefficients are measured using pulse/echo transmissions with focused transducers. This
study may establish a possible model and experimental method, in addition to providing a control for the characteristics of other cell types, specifically comparing normal and cancerous cells.

Keywords: Ultrasound; Chinese Hamster Ovary Cells; Prostate Cancer

"Who You Gonna Trust?" The Role of Gender and Job
Eli Maltz
Faculty Advisor: Maggie Thomas

Gender is the societal categorization of individuals on the basis of physical sex. However, there are many individuals who do not fit neatly into the categories of male and female—how do we view these people? This research presented participants with a male, female or androgynous target, described as being either a nurse or an accountant, and assessed the perceived trustworthiness of the targets. The results showed that female targets were rated higher than male or androgynous targets, but there was no difference between male and androgynous targets. Additionally, female participants rated nurses as more trustworthy than accountants, and male participants rated accountants more trustworthy than nurses. This shows that if individuals are gender variant, they are seen as less trustworthy than women, but equally trustworthy as men, and also that the gender of the perceiver has a strong effect on perceptions of another’s level of trustworthiness.

Keywords: Gender; Androgyny; Trust

Using Pi-Basic Ligands to Split the Hydrocarbon Bond: A Computational Study
Iyad Hillal Manassra and Chrysan Joy Mohammed
Faculty Advisor: Lori Watson

The cheap, selective catalytic conversion of methane from natural gas to the liquid fuel methanol remains an important challenge in the field of energy. Platinum group metals hold forth tremendous promise for the catalytic activation and functionalization of these unactivated C-H bonds. A major stumbling block in the rational design of catalysts to effect transformations such as this conversion of methane to methanol has been a lack of fundamental understanding of how the electronic structure of the supporting ligands affect each fundamental step of the catalytic cycle. While knowing the ligand characteristics that enhance the first step of the cycle is but one piece of the overall puzzle, it would be a key advance in our search for cleaner energy. This work has studied the effect of various ligands on four model catalytic systems, including both Ir and Pt metal centers. Each of the newly designed ligands has shown a marked improvement in the thermodynamics of the C-H activation reactions. Density Functional Theory calculations detailing the thermodynamics of complex formation and C-H activation, as well as the first computation results of the C-H activation of an Ir complex will be discussed.

Keywords: Computational Chemistry; Catalysis; Environmental Science
Future of New York City's Transportation
Dakota McElley
Faculty Advisor: Thor Hogan

The emission of human produced carbon dioxide from transportation use is a significant contributor to global warming. New York City has the opportunity to significantly reduce their transportation emissions by progressively implementing a policy that transitions a large amount of public and private transportation to sustainable modes. By designating south of 96th street of Manhattan as a "green zone", New York City can create a section of a major city that is essentially transitioned to sustainable transportation. This would include mandating taxies to transition to electric vehicles or other modes such as rickshaws, improving bicycle and walking infrastructure and including bus rapid transit routes, improving public transit and implementing congestion taxes. This would allow New York to use Manhattan as a model for the other parts of the city and for other cities to create similar policies from. It would also lower the amount of carbon emitted by transportation significantly providing for better health, public safety, and help mitigate the future damages estimated to be inflicted by global warming.

Keywords: Transportation; Climate Change; Sustainability

The Motivation Hierarchy: Japan’s Motivations for Imperialism in Late Meiji
Tyler McGinnis
Faculty Advisor: Susan Furukawa

Through the construction of a hierarchy, this work illustrates the relations between the motives that allowed Japan’s imperialism in the late 1800s. Despite a large number of differing scholarly works asserting a singular overarching theme for Japan’s imperialism, it is my assertion that Japan’s imperialism was poly-causal with motives building on and strengthening each other. This momentum would result in Japan's acquisition of the Korean peninsula by the early 1900s. In addition, this essay looks at power-dominance relations in 'early modern' Japan and how these relationships changed with the arrival of the West. By doing so, it serves as preliminary research into Japan's history of international relations in its traditional and modern eras.

Keywords: Japanese Identity; Imperialism; Language Ideology

Facial Expression and Perception of Emotion
Anicka Meyers
Faculty Advisor: Katharine Milar

The purpose of this study is to examine how blocking/facilitating a facial expression can affect the interpretation of an emotion seen in the face of another person. I hypothesized that participants who were in a forced smile condition would have a faster reaction time when recognizing a happy facial expression and a longer reaction time when recognizing a sad facial expression and that the opposite would be true for the forced frown facial expression. Additionally, I predicted that participants were more likely to interpret the neutral facial expressions as being happy or sad based on their facial expression. Forty college undergraduate students participated in this study by viewing photographs of the three facial
expressions (happy, sad and neutral) and identifying them using the DirectRT program to measure reaction time. Results will be furthered discussed and will aid in further understanding how emotions are processed through facial mimicry. This field of research will expand upon the theories of empathy and their importance in learning and social interactions.

Keywords: Facial mimicry; Empathy; Emotion

**Thermodynamic Investigation of Pedogenic Minerals at the Ptghavan 4 Site, Northern Armenia**
Nicole Nemhbar
Faculty Advisor: Cynthia Fadem

Precipitate masses found in the paleosols of Northern Armenia's Debed River Valley were formerly thought to consist of gypsum; however, powder x-ray diffraction analysis has shown that similar precipitates at two Paleolithic sites (Bagratashen 1 and Haghtanakh 3) are predominantly composed of the phosphate alternative, brushite. The aim of our current research is to determine the thermodynamic and geologic processes which would favor brushite precipitation, and confirm the regional nature of these soil relationships through analysis of samples from a third site, Ptghavan 4. Our work at these three sites is part of the Lori Depression Paleoanthropology Project, which aims to understand Lower Paleolithic adaptations in this region. Soil laboratory analyses will continue to address the bulk mineralogy and chemistry of deposits at all three sites, and attend to the relationship between hydrology and pedogenesis. Overall our findings will inform the landscape context and environment of archaeological occupation. Increased understanding of the pedo-chemical environment in particular, via mineral thermodynamics, elucidates the potential for bone preservation in these site contexts.

Keywords: Thermodynamic; Pedogenic Minerals; Armenia

**Social Reform through Japanese Pop Culture**
Hillary Nofil
Faculty Advisor: Susan Furukawa

The characters of Kirino Natsuo’s Out provide social commentary by challenging many of conventional stereotypes about race, age, and gender. Likewise, Edogawa Rampo’s story “The Psychological Test” centers on a murder and makes a strong point about society’s view of the aged. Jumonji from Out and Fukiya from “The Psychological Test” were chosen as the main characters to compare because their actions are similarly a result of arrogance and the misjudgment of others. This essay and crossover comic explore two notable genres in recent Japanese Pop Culture: the detective novel and shoujo manga, and analyze how these forms both operate as entertainment and are utilized to address larger societal issues.

Keywords: Pop Culture Studies; Japanese Studies; Japanese Popular Culture
HIV/AIDS Related Stigma and Discrimination in China
Yuka Ohnishi
Faculty Advisor: Marya Bower

Over the last two decades, China has begun to acknowledge that HIV/AIDS is a serious problem. After the first case of AIDS was reported in 1985, the number of people living with HIV/AIDS has increased rapidly. Today, the official number of Chinese people who are HIV/AIDS positive is listed at only 780,000. Many researchers believe this number is not a good representation of the extent of the disease; the total should be higher. The discrimination against HIV/AIDS is one of the main factors preventing the reduction of the disease. Many Chinese people refuse to be tested because they are concerned about repercussions at work and in school. To gain a better understanding of HIV/AIDS in China, I will look at news media from inside and outside the country to analyze their treatment of HIV/AIDS patients and the reasons behind it. I plan to use case studies to explore problems such as blood-selling. The goal of my research is to bring awareness to the condition of HIV/AIDS in China. I hope to show that by reducing discrimination towards HIV/AIDS patients, the number of people inflicted with the disease will also decline.

Keywords: HIV/AIDS; Stigma; Discrimination

Deconstruction in Fullmetal Alchemist: Confucianism and the West
Paul Palmer
Faculty Advisor: Susan Furukawa

By using the French philosopher Jacques Derrida's theory of deconstruction, I analyze Hiromu Arakawa’s Western-inspired manga (Japanese-style comic book), Fullmetal Alchemist. My thesis addresses the false dichotomy formed between the East and the West: a false dichotomy that is an inescapable consequence of language. By examining the text, terms, and themes used in Fullmetal Alchemist, I deconstruct this false dichotomy. Doing so allows me to conclude that deconstruction opens up the way for a new understanding of works that may have otherwise privileged a term in a different form of analysis.

Keywords: Pop Culture Studies; Japanese Studies; Japanese Popular Culture

How the Dairy Industry Should Change
Eric Parton
Faculty Advisor: Thor Hogan

The Dairy Industry is being run inefficiently and needs to change. On top of this, subsidies are costing the American taxpayers money and have been proven to drive up market prices. In regards to the dairy industry, this has led to a system focused solely on maximizing output, and not on producing products more efficiently. In this system, cows are primarily grain fed and not allowed out to graze on a regular basis. There are a number of problems that arise from this system; including higher food costs, raised transportation costs, lower quality of product and increased methane emissions. By switching to a system based primarily on free range cows, farms would become more efficient which would lead to lower prices, create natural carbon sinks and higher quality products. And there are a number of ways in which the federal government can help expedite this process.

Keywords: Subsidies; Industrial Dairy; Policy
Hello Högen: The Commodification of Dialect and Changing Ideology in Japan
Alessandro Pianetta
Faculty Advisor: Susan Furukawa

Japanese language policy in the Meiji period was written with the purpose of creating one Japanese language, and encouraging people to shift from regional varieties to the new codified version. The government used schools to propagate their version of “good Japanese” at the expense of the archipelago’s other dialects and languages. In the last 30 years, a resurgence of regional dialects can be seen in Japanese media and within Japanese youth culture, who are increasingly viewing Standard Japanese as being unfit for communication outside school or work. The youth, primarily in the vicinity of Tokyo, have begun to “decorate” their language with non-standard vocabulary in an act named “Dialect Cosplay.” This speech act uses dialects and the stereotypes associated with them to add another layer of meaning to their words. Various materials are increasingly being produced teaching how to use non-standard vocabulary, which are marketed using cuteness, a common theme in Japanese media and advertising. This talk examines how the media transforms dialects into commodities that can be bought and sold, and how that this transformation, coupled with the change of the status of Standard Japanese, is fueling a shift in language ideology.

Keywords: Japanese Identity; Imperialism; Language Ideology

The Effects of Levels of Processing on Haptic Memory
Anna Plotkin-Swing and Xan Smith
Faculty Advisor: Katharine Milar

The purpose of the current study was to determine if levels of processing has an effect on haptic memory. The college student participants were presented with a series of 16 unique ceramic tiles and were requested to touch each tile for 20 seconds. They were asked to report either what the pattern of the tile reminded them of in the real world (deep processing) or if the pattern was primarily raised or depressed (shallow processing). After a filler task, participants were presented with another 16 tiles, 8 old, 8 new, and asked to report old or new after feeling each tile. Signal Detection theory was used in the analysis of data (d’ and bias). Results confirm that there is indeed an effect of levels of processing information at encoding on haptic memory.

Keywords: Haptic Memory; Levels of Processing

Searching for West Nile Virus in Joseph Moore Museum Avian Specimens
Nicholas Pondelis and Julie Tamanini
Faculty Advisor: Heather Lerner

West Nile virus has become endemic to the United States since its introduction in 1999. The virus can cause a number of severe symptoms including fever, neuroinvasive disease, and encephalitis, among other serious complications. West Nile spreads primarily through mosquito vectors, and passerine birds are the primary host reservoirs. Understanding the historic distribution and prevalence of West Nile virus is important in controlling continued outbreaks of the disease, including in Indiana. In 2012 there were 62 cases of West Nile virus
in Indiana, including one in Wayne county, contributing to one of the worst U.S. epidemics to date. Implications for human health are numerous, due to the potential for zoonotic transmission from carrier mosquitoes. The Joseph Moore Museum is a valuable resource for investigating trends in animal populations. Utilizing RT-PCR techniques on avian specimens from the Joseph Moore Museum’s collection, we are investigating historic and current distributions of West Nile virus in Indiana. We examined 28 fresh tissues from 12 species including raptors, hummingbirds, and corvids. Corvid vulnerability to WNV infection makes them especially useful for monitoring outbreaks. Results from these tests allow for analysis of the rapid spread of an important modern disease in Indiana bird populations.

Keywords: West Nile Virus; Joseph Moore Museum; Avian Specimens

Quantitative Ultrasound Characterization and Comparison of Prostate Cancer Cells and Normal Prostate Cells
Yim Rodriguez, Aislinn Daniels, and Aditya Mahajan
Faculty Advisor: Teresa Herd

Ultrasound plays an important role in helping diagnose prostate cancer as part of Ultrasound Guided Biopsies; however by better characterizing normal and cancerous prostate cells – and not the actual tumor- this study enhances ultrasound as a first-hand diagnostic tool. Using quantitative ultrasound, normal and cancerous prostate cells were analyzed and compared. Experiments to determine tissue characteristics were performed using single element transducers ranging from 5-50MHz. Measurements of speed of sound, attenuation, and backscatter coefficients were made. The current results present a valuable insight on the differences between benign and malignant formations by analyzing them at the cellular level. Analysis of cellular behavior at smaller scales provides significant information for better understanding the properties of tumors at a larger scale. These findings contribute to enhance tissue characterization. Moreover, the results obtained present relevant data regarding speed of sound, attenuation, and backscatter coefficients useful for comparative studies and further analysis.

Keywords: ultrasound, back-scattering, prostate cancer

NGOs and Intergovernmental Organizations in Post-Conflict Bosnia and Herzegovina: Challenges, Impacts, and Lessons
Mirnes Salkic
Faculty Advisor: Monteze Synder

Nonprofits have been important actors in peace building and socio-economic transition in developing countries especially those affiliated with an internal conflict. These organizations have the ability to build a stronger civil society which is a pre-condition for establishing sustainable peace, influencing the political situation, and in providing a stronger foundation for democratization. Billions of dollars were invested in nonprofits in post-war Bosnia and Herzegovina for the purposes of building a more active and stronger civil society. The accomplished results are rather disappointing. This paper investigates the probable causes of the under-achievement of NGOs by looking at the two approaches used by the international community to “bring Bosnia back” and by analyzing the circumstances and the environment under which NGOs operated. The top-down approach (creating the Dayton constitution) had
a conflicting rather than complementary impact to the bottom-up approach (civil society building). This is because the Dayton constitution created a deeply politically segmented society among the three ethnic groups Bosniaks, Serbs, and Croats. In addition, many NGOs faced challenges such as: donor dependency, competition for funds, unclear relationship with the government, and keeping up with the mission.

Keywords: Nonprofits; Post-Conflict; Challenges

**Do You Have to Have a "God" to Be Emotionally Intelligent?: The Role of Religiosity/Spirituality on Resilience and Emotional Intelligence**

Aisulu Sanat  
Faculty Advisor: Maggie Thomas

The role of religiosity/spirituality in emotional intelligence and resilience was examined in the present study. Although the hypotheses were not supported, some results emerged. Men have higher scores on emotional intelligence in comparison to women when exposed to writing about cuisine. Moreover, the results have indicated that the order in which the two questionnaires were presented matters. When the resilience questionnaire was presented first, it negatively affected emotional intelligence scores. These findings suggest that there is no relationship between religiosity/spirituality and emotional intelligence and resilience.

Keywords: Emotional Intelligence, Resilience, Religiousity/Spirituality

**The Effect of Peer Relationships on Emotions of Foster Children**

Aisulu Sanat, Eli Maltz, and Mary Tierney  
Faculty Advisor: Rachael Reavis

Little research has investigated the effects of peer experiences on the positive and negative emotions of adolescents. Past research has shown that victimization can lead to lower negative mood, but positive mood has been neglected. The experiences of foster children have been particularly understudied, although it is known that they tend to have more conflicted and less intimate friendships, and face difficulty maintaining the friendships they do have because of their unstable living situations. Both bullying and victimization can be a result of lack of peer acceptance. Children who have bystanders intervene on their behalf tend to have less depression and anger, but if they lack strong friendships, their negative emotion may be higher on days they were bullied. A foster child might associate with delinquent peers, causing them to report higher positive mood on days that they bullied others. Maltreatment leads to poorer emotion regulation, which might influence how the child responds to being a bystander or a victim, as well as possibly increasing a child’s propensity to bully. This paper looks to increase knowledge about how the peer experiences of foster children may differ, and how their positive and negative emotional reactions could influence their resilience.

Keywords: Peer Relationships; Foster Care; Emotions
Understanding Imagined Interactions
Ance Simanovica
Faculty Advisor: Dan Rosenberg

This senior thesis is an attempt to appreciate the complexity, diversity and significance of imagined interactions as a crucial component of our daily lives. I argue that looking exclusively at the real interactions with actual people is an incomplete and limiting view of the social world. As part of my ethnographic study, I carried out a number of semi-structured interviews and gathered detailed descriptions of self-reported imagined interactions. Informants shared their experiences with imaginary friends as well as actual people that had moved into the realm of the imaginary. In analyzing this data, one must take into consideration the extensive research done by psychologists. However, the field of psychology emphasizes the developmental approach while it focuses less on the social aspects of the phenomenon. In order to explore the social significance of imagined interactions, I turn to perspectives that resonate with affect theory. This leads me into suggesting that people form affective attachments to imagined interactions because they play an important role in shaping, influencing and maintaining interpersonal relationships.

Keywords: Social Interaction; Imagination; Affect

The Addition of Puerto Rico, North California, and South California into the Union
James Levi Simpson
Faculty Advisor: Thor Hogan

There is a growing interest in adding Puerto Rico into the Union as the fifty-first state of the United States of America. While this idea is gathering interest through the nation the idea is not in the best interest of the Republican Party as the Puerto Rican vote is expected to go the Democrats. In the eyes of the Republican Party this can be seen as a negative impact as the new state could potentially have Senators, Representatives, and the Electoral votes all going blue making it tougher for the Republicans. In order to combat the issues at hand the idea of splitting the state of California into North and South California is a potential solution. This offers the Republicans a state that they could combat the addition of Puerto Rico with a conservative base in South California. This plan offers an opportunity to split the number of electoral votes that California currently has in order to potentially make the two separate states critical in a Presidential campaign. This proposal would be presented to a member of the California State Legislature and also a Congress member.

Correctional Education: An Answer to Recidivism?
Tom Slater
Faculty Advisor: Thor Hogan

The American prison system is one riddled with injustice, inconsistencies, and serious flaws. The prison industrial complex has created a situation in which companies and individuals can profit off of the policy behind the incarceration of criminals. At both the state and federal level, the government carries policies that push for maximum punishment and the saving of money. This ultimately results in incarcerated criminals who are not prepared to re-enter society as functioning, well-rounded citizens. In this policy analysis paper, I will propose a
variety of federal and state policies that can be used to tackle the problems of prison overcrowding and change the way in which we choose to teach criminals when they are behind bars. Education in prison is one of the most important policies to adopt, because it allows prisoners to “see the light” and not only learn how to change their ways that put them behind bars in the first place, but can lead to a practical set of skills that can bring them to a new place in life afterwards. I hope to gain a much broader understanding of how the prison system actually works, and find a variety of flaws that provide a direct avenue for policy alternatives. This will all result in a finite conclusion, most likely resulting in the use of education in prisons as a valuable tool, and the changing of certain laws surrounding reentry programs that allow released prisoners to become functioning members of society after their release.

Keywords: recidivism, correctional education, reentry programs

The Ethics of the Nonhuman Primate Model
Xan Smith
Faculty Advisor: Marya Bower

The use of nonhuman primates has been instrumental to our understanding of Parkinson’s disease and the identification of contributing genetic and environmental factors. With the use of the neurotoxin MPTP, researchers have replicated motor and neurophysiological symptoms characteristic of Parkinson’s disease. This usage has allowed for an artificial model of Parkinson’s disease in nonhuman primates with whom the scientific community can test future therapies intended for human patients. Inducing symptoms mimicking a neurodegenerative disease in nonhuman primates raises ethical questions regarding the welfare of the research subjects and protection of human health. The framework for the moral evaluation of research using nonhuman primates utilizes the three Rs: Replacement of animals with non-animal models, reduction of the number of animals used, and refinement of scientific procedures to minimize suffering. The use of the three Rs aims to avoid undue harm to nonhuman primates, but does not challenge the core scientific objective. This poster presentation will investigate the role of consent, analyze the political and legal pressures toward the use of nonhuman primates, and look beyond the “Three Rs” framework to examine the morality of using an animal model to advance human healthcare methodologies.

Keywords: Nonhuman Primates; Parkinson’s Disease; Ethics

Target Based Perceptions of Immorality
Dante Spellazza
Faculty Advisor: Maggie Thomas

How individuals perceive another person’s morality and whether perceptions of another’s morality changes based on the target of the immoral act was examined. Participants were exposed to a personally relevant or not personally relevant scenario in which a mild, moderate, or severe crime takes place. Participants gave higher immorality ratings to the perpetrator when the scenario was more severe. Though overall there was no difference in immorality ratings of the perpetrator based on personal relevance, participants did indicated higher levels of negative emotions in the moderate and personal condition compared to the
moderate and non-personal condition. These findings suggest that severity of crime committed has an effect on one’s perception of the criminal.

Keywords: Morality; Crime; Perception

**Development of an Active Magnetic Regeneration Refrigerator**
Justin Vadas
Faculty Advisor: Lori Watson

The prototype of a reciprocating active magnetic regeneration (AMR) refrigerator was engineered for use in a superconducting magnet. The overall goal of the project is to demonstrate the viability of using large superconducting magnets as the source of the magnetic field for magnetic refrigeration HVAC/R systems in large buildings. Presently gadolinium is being used as the magnetocaloric refrigerant material, with a water/sodium hydroxide solution (pH 10) as the coolant. At a field strength of 2 Tesla, a temperature gradient of 7 K was observed without flowing coolant through the baths. Further studies will be done with chilled baths and higher field strengths. As the magnetic field strength increases, the magnetocaloric effect increases, and the overall heating/cooling efficiency will improve. For use in HVAC/R systems, a high efficiency will have strong positive impacts, reducing annual operating costs and greenhouse gas emissions, thus providing both economic and environmental benefits.

Keywords: Magnetocaloric; Magnetic; Refrigeration

**Resolving the Tension: Reevaluating Immigration Policy in a Globalized World**
Nicole Vargas
Faculty Advisor: Jennifer Seely

The liberalization following World War II has facilitated the cross-border flows of goods and ideas, yet no effective regime has been created to facilitate labor flows. Thus many immigrant receiving countries have developed contradictory policies of open trade and relatively closed immigration. This paper examines immigration policy within the context of globalization, particularly the rise of supranational organizations, increasing economic integration, and the emerging international human rights regime. Focusing on US immigration since the 1990’s, I explore the degree to which the wide gaps between immigration policy intentions and actual outcomes can be attributed to this changing international context and its effects on state capacity and autonomy, and consider whether immigration policy can be effectively handled unilaterally in the future.

Keywords: Immigration Policy

**Islam in Southeast Asia: Arrival of Islam and the Reasons for its Rapid Expansion**
Yasas Wickramasinghe
Faculty Advisor: Chuck Yates

The worldwide Islamic community is rapidly growing through population increase and emigration. The implications of this Islamic expansion are commonly encountered in our lives through news, fashion, use of food, and politics. When we consider Islam, most of us consider the Middle East as the center of Islam and it related aspects. However, it is
important to notice that the Southeast Asian archipelago is home to a large portion of the world’s Muslim population. The majority of the population in countries such as Indonesia, Malaysia, and Brunei are Muslims and some of these countries are even controlled under Islamic religious beliefs and practices. Indonesia alone has the highest number of Muslims per country in the world. Therefore, considering these factors, the Southeast Asian Muslim population cannot be ignored when considering the world Muslim population. Because of the large presence of Islamic communities and the less attention of the global community given to the Islam in Southeast Asia, this paper attempts to explore the origins of Islam in Southeast Asia and to identify the factors that propagated the spread of Islam between 13th and 16th century.

Keywords: Southeast Asia; Islam; Silk Road

The Peer Project: Daily Experiences of Bullying
Serena Wong, Marini Pickering, and Jese Stetson
Faculty Advisor: Rachael Reavis

Completing seven days of daily diaries, which asks students about their verbal and non-verbal exchange with classmates each day helps us understand how a single student responds to positive and negative behavior. The Daily Diaries inform the other measures of our study, Friendship Quality Questionnaire, Peer Support Scale, Child Depression Scale and POMS, by including the child’s perceptions of school atmosphere. The Daily Diary elaborates on positive and negative relationships which might include presence of bullies, victims, bystanders and friends in the child’s school life. In this poster we will look at the interaction between the child’s daily account and negative and positive emotions.

Keywords: Bullying; Victimization; Peer Project

Japanese Gardening in an Earlham Context
Madolin Yoshikane
Faculty Advisor: Meghen Jones

In our class, Japanese Gardens, we are working to understand the meanings and concepts behind the placement of objects within a garden, as well as the place that gardens have had in Japanese culture throughout the past 900 years and presently. Through gaining this understanding we are applying ourselves to two garden locations on our own campus at Earlham College, renovating in the case of the Huffman Garden, and creating a garden south of Stout Meeting House. When working on these gardens we will be giving much thought to what we have learned and are continuing to study, incorporating and altering, as is acceptable, the rules and ideals associated with Japanese gardens. This poster documents our research and garden creations to date.

Keywords: Garden; Japanese
Hate Speech or Free Speech?
Alishba Zarmeen-Ahmed
Faculty Advisor: Nelson Bingham

"All great truths begin as blasphemies." - George Bernard Shaw

From the execution of Socrates to the attack on the US embassies for giving free speech rights to the Americans, our world has seen progress and bloodshed because of the power of words but how do we decide what should be part of the market place of ideas? Can we ever institute thought control? Can we stop people from exchanging ideas? Is it ethical to hinder human thought and moral progress? Which combination of words is exercising freedom and which is hindering someone else's basic freedoms? These are difficult questions with no black and white answer but learning from history and politics, we know that "bans" on words have never helped humanity but a free exchange in the marketplace of ideas is what gave birth to the UDHR and the American constitution. Freedom of thought and expression are the building blocks of a democratic society. Ideas have the power to change the world; but, as we know, with great power, comes great responsibility.

Keywords: Freedom of Expression; Hate Speech; Public Policy