Earlham College's 5th Annual Research Conference

April 14th - April 16th 2014
Members of the Richmond and Earlham College Community,

It gives us great pleasure to welcome each and everyone of you to the Earlham College 5th 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 5th Annual Research Conference planning committee, welcome and enjoy!

Legend

🌟 Grant winners

🎓 Senior Capstone
5th Annual Research Conference
Earlham College
Richmond, Indiana
2014

Steering Committee

Faculty
Rachael Reavis
Maggie Thomas
Kathy Milar
Lynn Knight

Students
Brian Forman
Serena Nga Sze Wong
Yasas Wickramasinghe
Schedule at a Glance

April 14th
Poster Presentations, Richmond Room
4:30 – 5:45 pm Session 1
6:00 – 7:15 pm Session 2

April 15th
Paper & Panel Presentations, LBC 201, 208, 211, 212, 214
4:30 – 5:45 pm Session A
6:00 – 7:15 pm Session B

April 16th
Paper & Panel Presentations, LBC 201, 208, 211, 212, 214
1:00 – 2:20 pm Session C
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Detailed Schedule

April 14th        Poster Session 1

4:30-5:45pm, Richmond Room

P1-1.  The Colors of Earlham: A Ford/Knight Project
       Nancy Taylor, Hannah Fox, Yoni Glogower, Risa Nisiguchi,
       Caitlin McGrath, Joann Quiñones, Natalie Reitz,
       Elizabeth Tipton
       Keywords: Dyes, Plants, Fibers

P1-2.  The Role of Africa in the Harlem Renaissance
       Teonna Taylor, Imani Russell
       Keywords: Harlem Renaissance, Langston Hughes, African
       American Identity

P1-3.  Identity of African Americans
       Imani Russell, Teonna Taylor
       Keywords: Literature, African American, Liberia

P1-4.  Clutch Size, Breeding Success and Nestling Growth of Eastern
       Bluebirds and Tree Swallows in Eastern Indiana
       Kasun Bodawatta, Natsumi Hamada Fearnside
       Keywords: Eastern Bluebirds; Tree Swallows; Life History
       Strategies; Breeding Success

P1-5.  A Look at Australia's Asylum Seeker Policy
       Holly McDonald
       Keywords: Australia, Asylum, Policy

P1-6.  Bacterial and Protozoal Infections
       Yazan Deek
       Keywords: Bacteria, Protozoa, Pathogens
P1-7. Problem of Conditionality in the EU Foreign Policy Towards Western Balkans
   Jelena Radmanovic

P1-8. Measuring Diffusion Coefficient Using Non-Equilibrium Technique
       Hoang Tran
       Keywords: *Diffusion, Membrane, Non-Equilibrium*

P1-9. HERMES (Hardware Enabling Remote Measurement for Educators and Students)
       Benjamin Yee, David Loring, Gilbert Bailey,
       Tuguldur Baigalmaa
       Keywords: *Arduino, Open-Source, Inexpensive*

P1-10. Winning The Rally
        Eli Richman
        Keywords: *Rally 'Round the Flag, Public Approval Polling, Acts of Terrorism*

P1-11. CS Applied Groups, HIP, & Green Science
        George Crowson, Sadie R Coughlin-Prego,
        Andrey A. Gavrilov
        Keywords: *Computer Science, Electricity, Sustainability*

P1-12. Do You Smile with Your Nose? A Comparative Analysis of Emoticon Usage in English and Chinese
        Margaret Ann Fero
        Keywords: *Emoticons, Internet Linguistics, Chinese*

P1-13. Studying the Movement of Physarum Polycephalum
        Charlie Boyd
        Keywords: *Slime Mold, Optimal Connectivity, Movement*

P1-14. Paleontology Field School 2013 Experience
        Caitlin H. Paul-Moran
        Keywords: *Geology, Paleontology, Field Experience*
Eboni Stevens
Keywords: Business, Cultural Differences

P1-16. A Policy Recommendation in Favor of a Compulsory Voting System for the United States
Michael Vinikoff
Keywords: Voting Reform, Policy Proposal, Compulsory Voting

P1-17. The Effects of Physical Facial Attractiveness on Interpersonal Attraction and Food Intake
Arielle Webb
Keywords: Social Influence, Eating Behavior, Social Psychology

P1-18. Public Policy of Long-Term Unemployment
Alexander M. Burns
Keywords: Politics, Long-Term Unemployment, Public Policy

P1-19. Library as Place: Redesigning Library Space for the 21st Century
Colin Andrews, Ann MacNamara
Keywords: Libraries, Space, Kenlee Ray Fellowship

P1-20. Race and Authority
Aubrie Hampp
Keywords: Race, Authority, Culture

P1-21. Examining Cellular Characteristics with Ultrasound
Aislinn Daniels, Dalton Johnson, Rodoula Kyvelou-Kokkaliaris, Kenzi Watkins
Keywords: Ultrasound, Cancer Cells, Backscatter

P1-22. Sprawl City: How Moving Back to Cities Will Fight Climate Change
David Scott Slucher
Keywords: Climate Change, Urbanism, Energy Infrastructure
P1-23. Geocode Your World: Making It Easier To Do Field Science  
Kristin Muterspaw, Ruth Lewis, Matthew Krumlauf,  
Anna Plotkin-Swing, Deeksha Srinath  
Keywords: Expeditionary Science, Experimental Education,  
Multi-Disciplinary Science

P1-24. Measure Epigenetic Changes in the Brain of M. sexta During  
Metamorphosis  
Abby Primack, Melanie Bourgeau  
Keywords: Microbiology, Epigenetics, Central Nervous System
April 14th          Poster Session 2

6:00- 7:15 pm, Richmond Room

P2-1. Sibling Relationships and Delay of Gratification
      Kübra Kaşkçı, Arielle Webb, Lena Flores, Olga Galperin,
      Aubrie Hampp, Sarah Kenny
      Keywords: Executive Functioning, Delay of Gratification,
                 Sibling Relationships

P2-2. Thoughtful Friends: An Examination of Executive Functioning,
      Theory of Mind, and Friendship
      Sarah Kenny, Lena Flores, Olga Galperin, Aubrie Hampp,
      Kübra Kaşkçı, Arielle Webb
      Keywords: Friendship, Theory of Mind, Executive Functioning

P2-3. Lipid Membrane Charge and Dynamics: An EGCG-Induced
      Membrane Permeability Study
      Christina M. Crozier, Colton M. Miller, Stephen J. Hornak IV,
      Nathan C. Wallace
      Keywords: Lipid, Membrane, Permeability

P2-4. Molecular Dynamic Studies of Z[WC] DNA and the B to Z-DNA
      Transition
      Jinhee Kim, Alex Seewald
      Keywords: DNA, Molecular Dynamics Simulation

P2-5. Reconsidering the U.S. Drone Policy: A Policy Brief
      Omar Al-Fotihi
      Keywords: Policy Brief, Drone Strikes, Signature Strikes

P2-6. Vendredi/Friday, the Karib Amerindian
      Jane Hu, Chiara Azzaretti, Lydia Jean Miller-Jewett, Caroline
      Rosoff, Erin Marguerite Stone
      Keywords: Identity, Friday, Carib Amerindien
P2-7.  Head and Neck Strength Assessment
    Desmond Adeniyi
    Keywords: Maximum Voluntary Torque, Head & Neck Strength, Normative Data Set

P2-8.  Privatization in the American Prison System
    Jessica Childs

P2-9.  Creating an Ideal Environment for E-Commerce in Ghana
    Gerald Sowah
    Keywords: E-Commerce, Ghana, Small & Medium-Sized Enterprises

P2-10. Resilience Building in Emerging Economies
       Cepha Toninga
       Keywords: Developing Economy, Resilience, Growth

P2-11. How Nebraska Conference for Undergraduate Women in Mathematics Conference Benefitted Us
       Eden Shroyer, Gwendolyn Claflin
       Keywords: Math Conference

P2-12. An Examination of Appropriation Between African American and Asian Cultures
       Michael Marvin, Samantha Bielanski
       Keywords: African American, Literature, Asian

P2-13. Policy Brief
       Yamukumba Mbaya
       Keywords: Policy, Congo, Reform

P2-14. United States Immigration Policy
       Hanley Fultz
       Keywords: Immigration, Policy, United States
P2-15. Impact of Working Relations on Bureaucratic Effectiveness in an Age of Politicization
David Schutt
Keywords: Bureaucratic Working Relations, Working Relations Under Rumsfeld, Working Relations in EPA under Bush/Obama

P2-16. The Plasticity of the Native Language in Adult Second Language Learning
Kazondra Ramos
Keywords: Language Learning, Second Language Learning, Inhibitory Control

P2-17. Does Time Really Fly When You’re Having Fun? The Effects of Memory on Time Estimation Tasks
Leah Koch
Keywords: Time Lapse, Memory

P2-18. Success in Inner City Schools: How to Make Students Succeed in Unsuccessful Environments
Sequoia Hudson
Keywords: Inner City, Policy, Success

P2-19. Paths to Prosperity in Developing Countries
Benedikt Urban
Keywords: Economic Development, Developing Countries, Import Substitution Industrialization

P2-20. Abstract Categories of Phonotactic Constraints
Dakotah Lambert, Margaret Ann Fero, Andrew Dai

P2-21. Labor Unions and Economic Inequality
Johann Osbakk
Keywords: Labor Unions, Income Inequality, Distribution
Paper & Panel Presentations

Session A

April 15th
4:30 – 5:45 pm

1. LBC 201
Panel Presentation – McMurdo Station: 2098

We examine aspects of the Winter Olympics including how climate concerns affect which cities are chosen to host, what factors affect counties’ participation, and how birthplace is related to participation. We will employ Geographic Information System (GIS) data to explore how these factors may be affected by climate change.

Keywords: Winter Olympics, Global Climate Change

Bidding Processes for the Winter Olympics
Clarice Perryman

Seeing Patterns in Winter Olympic Participation and Hosting via GIS
Qianyi Luo

Key Attributes of Successful Winter Olympic Nations
Aditya Krishnan

Hometown Bias in US Winter Olympic Athletes
Martha Byrne
2. LBC 208

2a. Racial Discourses and Hispanics: An Ethnography in Richmond, Indiana
   🌟 Marcos Ramos, Jr.
   Keywords: Hispanic, Richmond, Areas

2b. Urban Revitalization and Small American Towns
   🌟 Yasas Wickramasinghe
   Keywords: Urban Revitalization, Gentrification, Small Towns

2c. Place-Making through Nostalgia: Understanding Southern-Affinity in a Northern Town
   🌟 Maddie Fega
   Keywords: Place-Making, Nostalgia, Southern

2d. A Phenomenology of “Trash” in Richmond
   🌟 Faye Christoforo
   Keywords: Ethnography, Environmental, Primary Research

2e. Intelligent Appreciation: Marcus Mote Ushers in a New Quaker Acceptance for Art in the Richmond Community
   🌟 Kathryn Rockefeller
   Keywords: Marcus Mote, Quaker, Artist
3. LBC 211
Panel Presentation – Mindful Learning: Creating Transformations

“Mindful Learning” is education for deep self-exploration, open inquiry, mind-body unity, and compassionate praxis. This panel will present this topic through an annotated bibliography of resources, developing programs at other colleges, and recommendations for curricular innovations at Earlham College. Additionally, we will experiment with some mindful practices together.

Keywords: Experiential Education, Awareness-Based Learning, Alternative Ways of Knowing

Bibliosources
J. S. Willner

Programs
Deryk Bauer-Lee

Recommendations
Kayla Parks

Practices
Kendra Worley
4. LBC 212

4a. Competing Narratives of the Official and Alternative Belarusian National Identity
    Julia Orzel
    Keywords: Nationalism, Belarus, Identity

4b. Articulating Alterity: A Hybridic Reading of the Cultural Topography of New Spain
    Daniel F. Gonzalez
    Keywords: Post-Colonial Studies, Philosophy, History

4c. The Architecture of Oppression and Resistance in the Fictional Worlds of Rosario Ferré
    Nathaniel Pinheiro
    Keywords: Spanish Language Literature, Marxist Literary Criticism, Feminist Literary Criticism

4d. Robert F. Williams, Cuba, and the Canon of Civil Rights Literature
    Michael Grathwohl
    Keywords: Civil Rights Movement, Cuba, African American Literature

4e. The Cuban Revolution's Influence on Amiri Baraka's Writing
    Zoë Stringer
    Keywords: Amiri Baraka, Cuban Revolution, Poetry
5. LBC 214
Panel Presentation – Science, Technology, and Metaphysics in the Modern World

Through a reading of Heidegger and Arendt, we will present an analysis of modernity examining topics including: the relation between subjectivity and objectivity, representation, and modern science and technology. We investigate the infrequently examined metaphysical foundations of our current relation to the world in the Western tradition.

Keywords: Technology, Objectivity, Metaphysics

Philosophy Without Metaphysics and Heidegger’s Critique of Modernity
George Braithwaite

Heidegger on Being Cognizant in the Modern Technological Age
Hollis Stansbury

Representation as Objectivity in Modern Science
William Sido
Session B

April 15th
6:00 – 7:15 pm

6. LBC 201
6a. The Eternal Essence of Satirical Love
  Alyssa Stankiewicz
  Keywords: *Satire, Love, Quijote*

6b. Mapping Boosterism: Cartographic Conceptions of Chicago (1844-1874)
  Colin Andrews
  Keywords: *Cartography, Urban History, Chicago*

6c. The Representation of the Prostitute in Weimar Cinema During the Post-Inflationary Period
  Stacey Hauff
  Keywords: *Weimar Germany, Cinema, Prostitute*

6d. Translating “Jiang Gong’s Reputation” for American Audiences
  Margaret Ann Fero
  Keywords: *Translation, Dramaturgy, Chinese Politics*
7. LBC 208
7a. Improving Consensus at Earlham College
   Micky Jo Myers
   Keywords: Consensus, Quakers, Earlham

7b. The History of Divestment: Its Use as a Tactic for Social Change and Earlham College’s Divestment Movements
   Basil Farraj
   Keywords: Divestment, Activism, Palestine

7c. The Influence of Corporate Social Responsibility (CSR) on Financial Performance of Companies
   Jelena Radmanovic
   Keywords: Financial Performance, Responsibility Questions, Corporate Social Responsibility

8. LBC 211
Panel Presentation – From the Peace Encyclopedia to the Peace Classroom

The focus of the project is directed to an interactive adaptation of peace encyclopedia entries to the classroom. Our lessons are accompanied by images pertaining to the topic and the development of the MuseoPedia. Our work coincides with the visit of environmental reviewers of the encyclopedia to campus.

   Andrey Gavrilov, Justyna Gawel, Welling Hall, Nidzara Helja, Anna Juras, Anastasia Mikhailov, Julia Orzel, Samarjeet Thapa, Ximena Banegas Zallo
   Keywords: Peace Encyclopedia, MuseoPedia, Lesson Plans
9. LBC 212
9a. Learned Opportunities: Self-Reported Perceptions of Support of Students with Learning Disabilities
   Kai Patricio
   Keywords: Learning Disabilities, Classroom Support, Perceptions

9b. Feng Shui: Lifestyle or Science?
   Kübra Kaşıkçı
   Keywords: Feng Shui, Environmental Psychology, Cooperation & Mood

9c. Seeing is Deceiving: In-Groups and Out-Groups in Change Blindness
   Olivia Engle
   Keywords: Change Blindness, In-Groups, Out-Groups

9d. The Vision of the Subconscious: Salvador Dalí & The Eye
   Abe Shklar
   Keywords: Salvador Dalí, The Eye, Art History

10. LBC 214
Panel Presentation – Examining Authority: Arendt and Benjamin on Action and Violence

Examining participants in the Little Rock School integration and the figure of the rebel, we create a philosophical conversation concerning political action. Focusing on acts that are performed with intentions beyond established constructions of socio-juridical orders, we identify figures struggling for recognition and the implications of these tensions.

   Keywords: Philosophy, Social Unrest, Action

The True Rebel: Awakening the Divine Violence Dormant in the Masses
   Nicolas Brooks

Arendt Against Arendt: The Reductive Construction of the Political in “Reflections on Little Rock”
   Allie Dougharty
Session C

April 16th
1:00 – 2:20 pm

11. LBC 201
11a. Effects of Religion in the African American Community
   Mark Anthony Dixon
   Keywords: *James Baldwin, Religion, Music*

11b. African Heritage Through Western Religious Framework During the Harlem Renaissance
   Miles Ericksen

11c. What Explains Remittance Flows Across Countries?
    Kavi Ramburn
    Keywords: *Remittances, Migration, Democracy*

11d. Violence of the Name: How naming the M23 Rebel has perpetuated conflict in the Eastern Congo
    Leslie Massicotte
    Keywords: *Rebel, The Name, Policy*

12. LBC 208
Panel Presentation – The View From Space

Many of the weather and climate science successes of past decades were results of a series of satellites launched under the umbrella of NASA’s “Mission to Planet Earth.” Our research evaluated the history of this mission and tracked the development of Earth Observing satellites and their implications for climate science.
   Eli Richman, Gerald Sowah, Cephas Toninga,
   David Scott Slucher, David Schutt
   Keywords: *Climate Change, NASA, Satellites*
13. LBC 211

13a. The Effects of Perpetrator Gender and Type of Rape on Attributions of Responsibility Blame
Sarah Kenny
Keywords: Victim-Blame, Perpetrator Gender, Attribution

13b. Red Riding Hood Syndrome: The Tale, Feminicide, and Poststructural Feminist Responses
Cole Carvour
Keywords: Fairytale, Feminicide, Poststructuralism

13c. Beauty Acculturation Through Fairytales and Film
Sydney Hathaway
Keywords: Beauty, Acculturation, Fairytales

13d. Written on Their Faces: Interpreting the Moko Kauae of Maori Women
Ica Cruz DeSimio
Keywords: Ta Moko, New Zealand, Woodcarving

13e. The Threatening Natures of Dionysus and Women
Jeffrey Groves
Keywords: Dionysus, Women, Threat

14. LBC 212
Panel Presentation – Virtual Worlds Are Hot: Hot Beds of Learning

Two groups will present the results of their research from the French/Management Virtual Worlds in Education Ford/Knight. Each group will implement their modules in Earlham classrooms; during the presentation they will present the result of their assessments. The modules are: “Mardi Gras à la Martinique” and “Parable of the Sadhu.”
Wynn Hawker-Boehnke, Teddie Williams, Andrey Gavrilov, Robert Landon Dorssey, Esteban Arguedas, Sohrab Amiri
Keywords: Virtual Worlds, Language Acquisition, Education
15. LBC 214

15a. Diversity in Sciences
   Kamau "TiQi" Brown
   Keywords: Diversity, Underrepresented Minority Students, Science & Engineering Degrees

15b. Physiological, Perceptual and Behavioral Responses to Environmental Health Risk Messages
   Elsa Haag
   Keywords: Risk, Behavior, Perception

15c. Using GIS to Identify and Predict Environmental Racism in Indiana
   Andrew Hood, Abby Primack, Caitlin Clark
   Keywords: Environmental Health, GIS, Industrial Emission

15d. The Spread of Batrachochytrium Dendrobatidis Throughout the Americas and its Impact on Anuran Populations
   Charlie Boyd, Kasun Bodawatta, Clara Stuligross
   Keywords: Chytrid Fungus, GIS, Amphibian Decline
Abstracts
(Listed in alphabetical order of first author)

Desmond Adeniyi
Head and Neck Strength Assessment
Faculty Advisor: Laura Frey-Law, University of Iowa
The objective of this study is to test neck strength by analyzing the maximum torque that can be produced from the neck. The marines are experiencing neck pain/injury which could possibly be due to the helmets and night vision attachment design. The goal of this study was to create a normative data set of neck muscle strength. Healthy individuals between the ages of 18-45 were collected through the University of Iowa. Subjects performed two tasks, isometric and isokinetic, in three directions, flexion and extension, rotation, and sidebending and their maximum voluntary contraction were recorded. X males and X females were tested. For neck flexion and extension, rotation, and side bending 25 peak torque values were found: 5 isometric quantities and 5 angle-specific values for the 4 isokinetic velocities. This study has provided data to create a three-dimensional strength surface. The three-dimensional strength surface can be used by marines to create helmets and night vision attachments that follow the normative data set of neck muscle strength. This study will be expanded to create gender specific three-dimensional curves which will continue to expand until a minimum of 25 males and 25 females have been collected.

Keywords: Maximum Voluntary Torque, Head & Neck Strength, Normative Data Set

Omar Al-Fotihi
Reconsidering the U.S. Drone Policy: A Policy Brief
Faculty Advisor: Thor Hogan
The conventional wisdom of the U.S. Drone Policy is that it's cost-effective and that it causes very little risk of civilian casualties. Nonetheless, many recent criticisms have challenged such assumptions deeming the Drone Policy highly costly and ineffective. My project will join these criticisms in reconsidering the Drone Policy, but it will be very specific. It will focus on a type of Drone Strikes called "Signature Strikes". Signature Strikes are those which target unlisted "possible" terrorists based on their connections, relationships and specific assigned identifiers which box them inside the title of terrorism without legitimate accusation. Such ambiguity causes high civilian casualties and undermines the sole objective of the Drone Technology; namely its assumed ability to surgically take out specific targets with low civilian costs. Surrounding this focus is the detrimental ripple effect caused by the mishandling of the Drone Program. The costs of the program could be more profound when one includes the resultant anti-Americanism and delegitimization of local governments, both of which lead to a vast increase of Al-Qaeda supporters and sympathizers. My project will use my home country, Yemen as a specific case study to prove the aforementioned points.

Keywords: Policy Brief, Drone Strikes, Signature Strikes
Colin Andrews
Mapping Boosterism: Cartographic Conceptions of Chicago (1844-1874)
Faculty Advisor: Jonathan Diskin
My paper is concerned with the “geographic orientation” that underpinned the promotion and speculation—in short: the boosterism of Chicago during the mid-nineteenth century. I claim that between 1844 and 1874 Chicago boosterism underwent a “geographic reorientation” as the city transitioned from a primarily mercantile economy to a burgeoning manufacturing and industrial economy. By analyzing promotional maps produced in the mid-nineteenth century (and their textual counterparts), I trace the way in which Chicago was represented cartographically as this geographic reorientation took place. Drawing mainly on the Graff collection in the Newberry Library, I analyze 9 maps of early Chicago. In some cases my analysis rides heavily upon the maps themselves, in others my analysis focuses on the context in which the map is situated. I conclude that in the 1840s and 50s boosters employed a certain centripetal geographic orientation, and with the rise of an industrial economy boosters began conceptualizing the Chicago centrifugally. With this research paper I aim to contribute a more nuanced analysis of the way in which Chicago boosters were employing cartography to promote and conceptualize Chicago’s growth as the economy underwent a radical transition.

Keywords: Cartography, Urban History, Chicago

Colin Andrews & Ann MacNamara
Library as Place: Redesigning Library Space for the 21st Century
Faculty Advisor: Amy Bryant
As part of the Kenlee Ray Library and Archives Fellows program, we have discussed many of the challenges facing the 21st century library. Library use is rapidly changing and with it, the use of library space. As more resources become digital, space formerly occupied by books is now available to be utilized in different ways. Emerging ideas include “library as place”, collaborative learning, makers spaces, “library as third space”, and integrated technology. The main floor of Earlham’s own Lilly Library is one example of a space opened up by the rise of digital resources. Based on current trends in library space, we developed a list of possible changes to the main floor of Lilly Library. In order to create a comfortable and effective work environment, student opinions on these changes were collected and analyzed. Using this data, we created small test sites and gathered further opinions regarding these changes. From this series of research and analysis, we present our proposal for the reconfiguring of space on the main floor of Lilly Library.

Keywords: Libraries, Space, Kenlee Ray Fellowship

Kasun Bodawatta & Natsumi Hamada Fearnside
Clutch Size, Breeding Success and Nestling Growth of Eastern Bluebirds and Tree Swallows in Eastern Indiana
Faculty Advisor: Wendy Tori
Eastern Bluebirds (Sialia sialis) and Tree Swallows (Tachycineta bicolor) are socially monogamous, secondary cavity nesters that show variable breeding traits among and within populations. As part of a long-term research study about the reproduction behavior of these species, we collected information about clutch sizes, incubating period, brooding period, hatching rates, fledging rates and nesting growth over time for both species. Data was collected from April 24th to August 10th 2012 in four locations in Richmond, Indiana. We found that
Eastern Bluebirds have smaller clutch sizes, shorter brooding periods and higher fledging rates than Tree Swallows. We found no statistical difference in the incubation period and the hatching rate between the two species. Moreover, our results suggest that chick growth (weight) occurs mostly during the first 10 days, then gradually slows down. Our results will allow us to have a better understanding of the life history strategies of these species in Richmond, Indiana.

**Keywords**: Eastern Bluebirds, Tree Swallows, Life History Strategies, Breeding Success

**Charlie Boyd**

**Studying the Movement of Physarum Polycephalum**

**Faculty Advisor: Christopher Smith**

This study looked at the “optimal” connectivity of buildings on Earlham’s campus as defined by the slime mold, *Physarum polycephalum*. Food sources, oat balls, were placed on a Petri dish reflecting the map locations of buildings on Earlham’s campus. *Physarum* is known to take the most efficient route to points and has proved remarkable in its ability to solve complex mapping problems, such as the connectivity of cities in Japan (rail network) and Spain (highway network). We have studied the movement of *Physarum* across “Earlham College’s campus” (in miniature on an agar plate) and have taken pictures of the resulting paths created. I plan to use GIS and other mapping tools to compare the paths created by *Physarum* and the actual sidewalks on Earlham’s campus. With the creation of the new buildings, it will be interesting to examine the ‘optimal’ connectivity of these buildings.

**Keywords**: Slime Mold, Optimal Connectivity, Movement

**Charlie Boyd, Kasun Bodawatta, & Clara Stuligross**

**The Spread of Batrachochytrium Dendrobatidis Throughout the Americas and its Impact on Anuran Populations**

**Faculty Advisor: Wendy Tori**

Worldwide declines in amphibian populations have been attributed to such factors as habitat loss and deterioration. Batrachochytrium dendrobatidis (Bd), the chytrid fungus causing chytridiomycosis in amphibians, has also been implicated in the widespread decline of amphibians. Some studies suggest that Bd originated in Africa but quickly spread through the trade of infected anurans. Once introduced in an area, Bd’s ability to live freely in water allows it to rapidly infect ecosystems via waterways. Using spatial analysis, we investigated the spread of Bd and its impact on native populations of Anurans in the Americas. We found that the fundamental niche of Bd spans almost the entirety of the Americas, appearing to be limited by cold temperatures and, to a lesser extent, high precipitation. The realized niche of the fungus has also rapidly increased in recent decades. Furthermore, our study indicates that the spread of Bd in the Americas began in large coastal cities and continued spreading inland, potentially aided by human transportation vectors such as roadways. As arguably one of the most virulent and catastrophic pathogens today, action and awareness about Bd is critical to the survival of today’s amphibians.

**Keywords**: Chytrid Fungus, GIS, Amphibian Decline
Nicholas Brooks & Allie Dougharty  
Group Panel on Examining Authority: Arendt and Benjamin on Action and Violence  
Faculty Advisor: Kevin Miles  
Moderator: Kevin Miles  
Panel Abstract: Examining participants in the Little Rock School integration and the figure of the rebel, we create a philosophical conversation concerning political action.  
Keywords: Philosophy, Social Unrest, Action  

➢ The True Rebel: Awakening the Divine Violence Dormant in the Masses by Nicolas Brooks  
I primarily engage with Walter Benjamin’s “Critique of Violence,” incorporating the concepts of law, force, and justice that have been further advanced by thinkers such as Jacques Derrida and Hannah Arendt. Focusing on the figure of the rebel, I explore Benjamin and Derrida’s conception of law’s dependency on violence. The rebel reveals this dependency, inspiring action by the masses, unifying them against the violence of the law. Benjamin refers to ‘divine violence’ as that which can break the historic cycle of legal violence. This fairly open-ended concept has been approached by several scholars, opening discussions regarding the way Benjamin conceptualized divine violence. Ari Hirvonen argues that divine violence appears in the moment of true rebellion, and thus cannot be sustained throughout time to achieve ends beyond the momentary interruption of the legal system, during which the order of law is destroyed. Thus, we should not wait passively for the appearance of divine violence to save us from the violence of law, but it is our actions, as a collective, that constitute divine violence and interrupt the historic cycle of legal violence.  

➢ Arendt Against Arendt: the Reductive Construction of the Political in “Reflections on Little Rock” by Allie Dougharty  
This paper discusses Hannah Arendt’s critique of government mandated school integration in her 1957 essay “Reflections on Little Rock” in the context of her larger project on the political as expressed her book The Human Condition. First, I will articulate Arendt’s interest in this specific historical event by explicating how the “battle at Little Rock” can be structured around Arendt’s social and political distinction. The bulk of the paper then examines the realities that are ignored when Arendt frames the acts of the Little Rock school integration participants as non-political. I look to both the initial critiques of “Reflections on Little Rock” and Arendt’s essay “In Response to Critics” as well as contemporary secondary sources to help construct an argument that calls into question the actuality of ascribing certain forms of action political and others not  

Kamau “TiQi” Brown  
Diversity in Sciences  
Faculty Advisor: Joann Quiñones  
This study will discuss and gather information regarding diversity in education, specifically in the scientific fields. This research will range from the statistical data of the number of minority and or ethnic groups pursuing degrees and educations in the science field. This study will examine the distribution of the generally underrepresented ethnic groups, and evaluate their rate of success in the science field. This research will investigate also if the role of race and social
stigma also affects their success in science, especially in programs aimed towards assisting the
development of students interested in pursuing and determining whether they receive the same
resources and assistance to be successful. This research also examines the specific ways the
diversity success rates of students pursuing an education and/or career in the science field can be
dramatically improved with assistance from faculty, specific academic enrichment program
resources, and research training programs and offers various tutoring opportunities as
institutions. This research will specifically examine the Meyerhoff Scholars Program at
University of Maryland, Baltimore County, and the effects of the program, whether or not the
resource is beneficial for underrepresented minority students (URMs).

Keywords: Diversity, Underrepresented Minority Students, Science & Engineering

Degrees

Alexander M. Burns
Public Policy of Long-Term Unemployment
Faculty Advisor: Thor Hogan
After the 2008 financial crisis unemployment grew substantially. However, since early 2010 the
unemployment rate has been returning to an almost normal level (around 6.6%), but not
everyone is back to work. The percentage of the unemployed who were out of work for 27 weeks
or more grew to around 45% in 2010 and 2011, and is still at roughly 37% three years later.
Those who are unemployed for a long period of time are often passed over in favor of applicants
who are less experienced, but have a more recent history of employment. My research will deal
with the political and economic implications of a policy aimed at fixing the current long-term
unemployment problem. This study will specifically focus on State of New York, where the
long-term unemployment rate is higher than the national average by 7.1%. I will be studying a
realm of policy called active labor market policy, which has to do with public employment
services, training schemes, and employment subsidies.

Keywords: Politics, Long-Term Unemployment, Public Policy

Cole Carvour
Red Riding Hood Syndrome: the Tale, Feminicide, and Poststructural Feminist Responses
Faculty Advisor: Aletha Stahl
Following Jack Zipes' concept of a "Red Riding Hood syndrome," this essay examines both the
history of the Red Riding hood tale itself, and tracks the particular construction of the female
body as a culpable sadomasochistic object, beyond the realm of literature to feminicides on the
U.S. / Mexico border, as part of a concentrated effort to define and shape the female body. This
essay then looks at two feminist poststructural responses to this construction of woman, a
rewrite of the Riding hood tale and a documentary.

Keywords: Fairytale, Feminicide, Poststructuralism

Jessica Childs
Privatization in the American Prison System
Faculty Advisor: Thor Hogan
The public policy problem that I am choosing to tackle for my thesis is the privatization of the
American prison system. Even though the United States is involved with prison reform abroad, it
seems that they have fallen short on prison reform on a domestic level. This is evident in the
escalation of private contracting in the prison system, effectively yielding a profit for each
individual who is incarcerated, which has led to an incredible spike in the number of individuals incarcerated. These issues in the American prison system have many different root causes, such as an increase in harsh sentencing laws, and a lack of funds causing the government to be reluctant to make investments to ensure safe conditions of prisoners. The prison system has now become a major American industry, as it is a lucrative business, which has been established in deprived communities to provide employment. The policy implications are stark and immediate. My goal is to target Congress with a newly constructed solution that provides an alternative method to privatizing the prison system.

Faye Christoforo
A Phenomenology of "Trash" in Richmond
Faculty Advisor: JoAnn Martin
Based in the Wayne County/Richmond area, this project is a study of the ways that people create a distinction between “object” and “trash”. It is made up of several interviews of people who live and/or work in Richmond who have varying daily interactions with post-consumer waste. The manager of the Richmond landfill, workers at local scrap metal plants, a man who makes a living from scavenging, a local farmer and one of Earlham’s own MAT students talk about trash, recycling and making do in a disposable consumerist culture. Background research on ethics and economics of waste, purity of self, and object connection allow this work to explore the changing values of “things”. Although it may be considered the work of an environmentalist, this study thoroughly questions the development of recycling ethic and the role of the bricoleur in recycling culture and practice.

Keywords: Ethnography, Environmental, Primary Research

George Crowson, Sadie R Coughlin-Prego, & Andrey A. Gavrilov
CS Applied Groups, HIP & Green Science
Faculty Advisor: Charlie Peck
We would like to have the opportunity to publicize our work and its educational value. We represent the Hardware Interface Project and Green Science Applied Groups in the Computer Science Department. Our objective is to provide an overview of our sustainability-related projects. Such projects include a solar array, hardware that monitors electricity usage, and software that visualizes that data. Our group is not well known and so we desire the opportunity to strengthen our presence at Earlham. Currently there are five students in the group. Projects In order to monitor the electricity usage of buildings we attach magnets to the circuits that provide those buildings electricity. These magnets send their readings to one of our servers to be stored in a pSQL database. We transform this data into information by producing graphs and charts. We’ve made charts for Energy Wars, for general use, and for the solar array. We’re currently working on normalizing data from buildings so that different buildings and different environments can be compared objectively. General chart:
http://proto.cs.earlham.edu/~energy/production/eDisplay/ Energy Wars chart:
http://proto.cs.earlham.edu/~energy/production/EnergyWars/

Keywords: Computer Science, Electricity, Sustainability
Of recent interest in the field of lipid research is the effect of antioxidants on membrane stability. Epigallocatechin gallate (EGCG), an antioxidant extracted from green tea, has recently been shown to disrupt the integrity of large unilamellar vesicles (LUVs). The mechanism and details of the interaction between EGCG and cell membranes is still unclear. We investigated the effects of membrane composition on EGCG-induced LUV leakage using a known fluorescence vesicle leakage assay. Increasing concentrations of EGCG were added to LUVs loaded with carboxyfluorescein (CF). CF leakage from the vesicles was observed and quantified using a spectrophotometer. Initial results indicate that incorporation of either negatively charged lipids or lipids that affect membrane dynamics reduce the overall membrane permeability. Presented here are leakage plots for a wider variety of lipid compositions than have been shown previously.

Keywords: Lipid, Membrane, Permeability

Measuring ultrasonic characteristics of cells outside the cellular matrix is of interest for distinguishing between tissues. 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 transmission with unfocused transducers, and backscatter was measured using pulse/echo transmissions with focused transducers. By expanding the data through further research of different tissue types and their corresponding cancerous states, an improvement can be made in ultrasonic procedures used to detect and diagnose tumors.

Keywords: Ultrasound, Cancer Cells, Backscatter

The human body is constantly being exposed to a wide variety of microorganisms. These microorganisms, including both bacteria and protozoa, live without causing harm yet some are potential pathogens in healthy and immune compromised hosts. These organisms are primarily residents of the oral cavity which can lead to the production of systemic illnesses. Examples of pathogenesis include both primary and sometimes secondary oral lesions and the potential for involvement in other tissue systems. In this study, I will be investigating the bacterial and protozoal infections and diseases in the human mouth and explore contemporary treatments and recovery programs.

Keywords: Bacteria, Protozoa, Pathogens
Ica Cruz DeSimio  
Written on Their Faces: Interpreting the Moko Kauae of Maori Women  
Faculty Advisor: Julie May  
Often mistaken as a tattooing tradition, the practice of tā moko has received very little scholarship due to its sacred nature in the Māori culture. This research seeks to interpret the abstract and representational motifs in moko kauae on the faces of Māori women in New Zealand. Critical to this highly spiritual body modification is the conceptual art of woodcarving or whakairo. The practice of tā moko directly stems the carving of ancestral figures. Masters of whakairo have turned to the human body as a continued expression of genealogies, rank, maturity, beauty, wisdom, and other meanings. This study will investigate how moko kauae designs are chosen, the process and tools required, and the significance they carry for both the wearer and the Māori culture at large. Invaluable to this research is the continued assistance of contemporary moko kauae wearers and Tohunga Tā Moko (experts of tā moko).  

Keywords: Ta Moko, New Zealand, Woodcarving

Mark Anthony Dixon  
Effects of Religion in the African American Community  
Faculty Advisor: Joann Quiñones  
This paper will be about the effects that religion and music had on the African American community in the 20th century. Specifically, I am going conduct a paper using James Baldwin and his novel, Tell It on the Mountain, as the framework for my presentation. The main point of my paper is to illustrate how African Americans used religion as a way of overcoming oppression. Not only did it give them strength in numbers but held as their foundation for the faith in overcoming oppression.  

Keywords: James Baldwin, Religion, Music

Olivia Engle  
Seeing is Deceiving: In-Groups and Out-Groups in Change Blindness  
Faculty Advisor: Kathy Milar  
Forty-eight undergraduate students participated in the experiment that investigated the effects of in-group or out-group membership on change blindness. One half of the participants were shown a video of an advisor and student having a conversation where the student switched places with another student and the other half of the participants viewed a video where the advisor switched. The participants were then asked various questions about the video including whether they noticed the switch. The results showed that participants were significantly more likely to notice the switch when it occurred between the advisors than when it occurred between the students.  

Keywords: Change Blindness, In-Groups, Out-Groups

Miles Ericksen  
African Heritage Through Western Religious Framework During the Harlem Renaissance  
Faculty Advisor: Joann Quiñones  
This paper explores the connection between the adoption of western religious ideology and how it affected both the affinity for and renunciation of African heritage during the Harlem Renaissance. It is important to understand the lens through which African-American writers view African culture, and how their perception of the past might be shaped by western ideals. The purpose of placing the focus of the project on religion is to distinguish between what might be
the idolization of America as a morally spotless nation, and a more sincere assimilation of African culture. When Christianity’s tendency to emphasize ethical purity overwhelms the transcendence of relative ‘good’ and ‘bad’, the resulting self-righteousness leaves little room for cultural diversity. I point out instances in Harlem Renaissance literature where this phenomenon might be at play.

Basil Farraj
The History of Divestment: Its Use as a Tactic for Social Change and Earlham College’s Divestment Movements
Faculty Advisor: Jonathan Diskin
This research looks into the use of divestment as an activist tool used to enact political and economic change. It analysis two movements in particular; the current Boycott, Divestment and Sanctions movement against Israel and the use of divestment in the Anti-Apartheid South-Africa movement. Furthermore, the research looks into the use of divestment as a tool by Earlham College students and movements, and investigates the obstacles they face—and are still facing—and the prospects for change promised by the use of divestment. The research will also provide an overview of the history of the South Africa divestment campaigns which were present on Earlham’s College. This is an attempt to clearly narrate the administration’s reactions to these campaigns and the decisions that were taken at that time.

Keywords: Divestment, Activism, Palestine

Maddie Fega
Place-Making through Nostalgia: Understanding Southern-Affinity in a Northern Town
Faculty Advisor: JoAnn Martin
This thesis examines the phenomenon of white Southern cultural affinity among residents of Richmond, Indiana. By applying theoretical frames of place-making, and imagined and vernacular geographies to information collected through ethnography and census data, I have been able to enter into depth about this phenomenology yet avoid large-scale generalizations that are inappropriate and unnecessary for the goals of my project. The grounding symbol of my research began as the confederate flag, but the defensiveness connected to the hostility often associated with the symbol detracted from themes that were more important to me and more observable in my informants, nostalgia and detached regional pride. My grounding symbols have therefore changed to "redneck", "country", "rebel", "Southern pride", and this broadening has allowed for a wider range of participants, and insight into nostalgia that does not focus on the civil war, but identity-affiliation and the imaginary of regional pride. Without differentiating between different classes in Richmond, I will be tracking this affiliation in relation to the historically-relative, ever-changing economic and social capital that residents apply to Richmond.

Keywords: Place-Making, Nostalgia, Southern

Margaret Ann Fero
Do You Smile with Your Nose? A Comparative Analysis of Emoticon Usage in English and Chinese
Faculty Advisor: Kathy Taylor
This work provides a visual representation of original internet linguistics research focusing on a comparative analysis of the use of emoticons by speakers (based both on precedence and
frequency of use) of English and Chinese conducted in Fall of 2013. It features individual analyses of the usage of emoticons by speakers of English and Chinese in terms of positivity and usefulness, as well as a look into the use (or non-use) of hyphens to represent a “nose” and a comparison of real-world linguistic influence with internet community or language usage influence on a speaker’s emoticon usage as self-reported on an original internet survey. Furthermore, usage of emoticons is compared according to factors including age, gender, and linguistic background between the two languages analyzed. While the Chinese-speaker data was skewed towards young female participants, the breadth and balance of the English-speaker data allows for further conclusions to be drawn within that set.

Keywords: Emoticons, Internet Linguistics, Chinese

Margaret Ann Fero
Translating "Jiang Gong's Reputation" for American Audiences
Faculty Advisor: Lynne Perkins Socey
This paper highlights the process of translating contemporary Chinese spoken theatre to English for American audiences through the example of recent new work 蒋公的面子 (Jiang Gong De Mian Zi, Jiang Gong's Reputation). This play was written by a Nanjing University student and immediately became extremely popular in China, where it was soon banned for public performance due to political controversy surrounding its portrayal of China’s Cultural Revolution. It went on a national tour consisting only of theatres at top-tier universities, which were not subject to the ban on the work due to an Academic Freedom exemption. Previous work involved translation of a small portion of this play, and that same portion is analyzed in this paper both as a piece of theatre and as a small, easily-accessible window for English-speaking American audiences into the gap between government-permitted and actually-held political beliefs in contemporary China, as revealed by the contrast between this play’s widespread popularity and its government condemnation. Finally, this work offers a hope for increased opportunities for intercultural understanding and dialogues between Chinese and Americans.

Keywords: Translation, Dramaturgy, Chinese Politics

Hanley Fultz
United States Immigration Policy
Faculty Advisor: Thor Hogan
Immigration and immigration reform have been hot-button issues in the United States, especially after Congress recently attempted to pass a comprehensive immigration reform. There are a multitude of illegal immigrants that live in the United States who live in limbo. There are very few rights for the immigrants that are currently living here. A lack of any clear policy on immigrants currently living in the country has left these people without any definitive rights and in constant fear. Current immigration policy is outdated and does not work in the 21st Century. Immigration policy reform will have a major impact on the national economy. Immigration reform will grow the labor force, which will then lead to higher productivity. Since the baby boomer generation is now retiring, the labor force is declining. Reforms will grow the labor force, and prevent further decline. This growth in the labor force will also help offset the shortfall that Social Security is now seeing. It will also contribute to shrinking the national deficit, not to mention improving the lives of the current illegal immigrants in the country. Their lives will be given stability and safety, something of which is not always guaranteed now.

Keywords: Immigration, Policy, United States
Daniel F. Gonzalez  
**Articulating Alterity: A Hybridic Reading of the Cultural Topography of New Spain**  
Faculty Advisor: Ferit Güven  
This project posits that through the transplanting of European textual culture, the conquest of Central Mexico was to be inscribed upon the body of the Nahua historical memory as an epochal moment, the end of Pre-Hispanic Mexico and the beginning of time, of 'civilization' proper, in New Spain. This moment is analyzed with a critical, cartographic, language that highlights the ways the transplanted textual culture of Europe inscribed, or mapped, the New World and the Nahua within its' spatial and cognitive horizons. Rooted in an analysis of primary documents created by Nahua authors in colonial New Spain, I argue that these documents constitute a subversive body of minor knowledge able to conceptualize European concepts in Nahua categories. Through these documents, the Nahua were able to diffuse the power of the letter to preserve a historical memory that could in the same moment both engage with the European tradition, while also remaining aloof of any notion of cultural taxonomy. Understanding Nahua writing as a minor literature is a particularly compelling articulation of a hybridic understanding of the colonial era. Through a hybridic understanding of colonial society, I argue that we might read these documents as fissures within Eurocentric cultural topographies and complicate narratives of the colonial world that suppose an opposition of the rational European and traditional or ancient Nahua.  

*Keywords: Post-Colonial Studies, Philosophy, History*

Michael Grathwohl  
Robert F. Williams, Cuba, and the Canon of Civil Rights Literature  
Faculty Advisor: Joann Quiñones  
This paper will explore the life of civil rights activist and revolutionary Robert F. Williams, primarily in relation to his exile in Cuba during the 1960’s. Williams, who founded the Union County, NC, NAACP, pushed back against the nonviolent tactics that characterized the Civil Rights Movement at the time and began to advocate the use of violence in self-defense well before the advent of what we know as Black Power. After he was accused of kidnapping, Williams and his wife fled to Cuba where Williams struck up a relationship with Fidel Castro while continuing to vehemently protest Jim Crow and American racism. Both Williams and his book Negroes with Guns, written during his exile, have largely fallen out of memory because they occupy the space between the “classical” phase of the Civil Rights Movement and Black Power. Focusing on Negroes with Guns, this project will examine Williams’s time in Cuba and its effects on his politics, social philosophy, and relationship to key figures of the Civil Rights Movement.  

*Keywords: Civil Rights Movement, Cuba, African American Literature*

Jeffrey Groves  
The Threatening Natures of Dionysus and Women  
Faculty Advisor: Susan Wise  
The god Dionysus was associated with women and feminine nature early on in ancient Greek literature and art. Dionysus was depicted as cross-dressing and effeminate, and cross-dressing by his worshipers is attested for both public and private ritual. Scholars have long recognized that there was a special connection between women and the god of wine. Nevertheless, the significance of that connection remains imperfectly understood. Drawing upon the rich body of
scholarship on women that has been published in recent years, I argue that examining the assumptions fifth century Athenians made about women will provide critical insights into the myths and rituals that surrounded Dionysus. Specifically, I argue that, both women and Dionysus were regarded as wet, polluting, and of the wilderness, and threatening and in need of control by social structures and the men who administered them. Although the evidence is fragmentary, and must be gleaned carefully from sources which treat our subjects obliquely, it remains sufficient to paint an ever clearer picture of Dionysus and the Athenian women who worshiped him in the fifth century.

*Keywords: Dionysus, Women, Threat*

**Elsa Haag**  
**Physiological, Perceptual and Behavioral Responses to Environmental Health Risk Messages**  
**Faulty Advisor: Maggie Thomas**  
My senior research project investigates how the framing of an environmental health risk can affect perceptions of risk, behavior and physiological responses. I hypothesized that participants who were exposed to a negatively framed, loss message about the risks of radon would perceive greater risk and demonstrate greater attitude and behavior change than those exposed to the positively framed, gain message about radon. I also hypothesized that a decrease in heart rate and increase in skin conductance would correlate to greater perceptions of risk and greater attitude and behavior change, as described by a survey designed to assess participant perception of radon risk and participant intent to take protective actions. Finally, analyses investigate whether the message framing affects behaviors and future intention, as participants could take a pamphlet with further information about radon. While extensive research has been done on the effects of health risk messaging, little research has been done with environmental health risk messaging. Since environmental health risks often do not result from individual behavior or addiction, responses to such risks should be studied separately.

*Keywords: Risk, Behavior, Perception*

**Aubrie Hampp**  
**Race and Authority**  
**Faculty Advisor: Maggie Thomas**  
This study was designed to look at the relationship between authority and race. In this study, participants will be presented with a quote about Black culture that is either backed up with sociological evidence or a quote that is nothing more than a stereotype. Participants will also be given either a picture of the person who is believed to have said the quote or no picture at all. The picture will either be of a White male or a Black male. Participants will then fill out survey that measures how knowledgeable about the topic the person is, how racist they believe the person to be and then complete survey that will measure White guilt. Researchers hypothesize that Participants will think both statements will have more truth when they believe a Black person has said it than when they believe a White person has said it, participants will rate the White person as being more racist than the Black person in both quote conditions and that those that have higher levels of White guilt are more likely to believe the stereotype than those with lower levels of White guilt.

*Keywords: Race, Authority, Culture*
Sydney Hathaway

Beauty Acculturation Through Fairytales and Film

Faculty Advisor: Branwen Okpako

How do concepts of physical beauty “acculturate” females in fairytales and the "Woman's Film" of the 1940's? From fairytales to the 1940’s films about women recovering from mental illness, beauty is defined by different standards. I will look at how these constrictions carry over to contemporary discourse and how the current standards of beauty affect women today. I will reference works by Marcia L. Lieberman, “Someday My Prince Will Come”: Female Acculturation Through the Fairy Tale (1972), and Mary Ann Doane, “The Clinical Eye”: Medical Discourses in the “Woman’s Film” of the 1940s (1985). Today our beauty is seen very differently. Beauty, like long, flowing hair and princess-like features, is still seen as “good” and ugliness is still viewed as a negative aspect of a person. The 1940s films indicate that beauty is a sign of “good” mental health and a result of therapy with a male character, usually the doctor. In both fairy tales and films, men are imperative to the woman’s “fairytale ending”. To what extent do women continue to be seen as specular objects in our culture today? I will explain how current definitions of beauty show what we desire to be and why that is.

Keywords: Beauty, Acculturation, Fairytales

Stacey Hauff

The Representation of the Prostitute in Weimar Cinema During the Post-Inflationary Period

Faculty Advisor: Chuck Yates

The post-inflationary period of the German Weimar government, from approximately 1924 to 1929, created a culture that simultaneously dismantled previously held conservative cultural standards and engendered a critically important artistic movement while giving rise to a collective feeling of hysteria born out of a fragile political system and changing social norms. This presentation examines the cinematic trope of the prostitute in the internationally acclaimed Weimar film movement as a metaphor for the anxieties of the German people with a specific focus on the post-1970's feminist analysis of the films that removes the character of the 'public woman' exclusively from the sexual sphere. The prostitute emerges through this work as a symbol for the growing fear of modernization and, thus, commodification and urbanization that was growing rampantly in the republic.

Keywords: Weimar Germany, Cinema, Prostitute

Wynn Hawker-Boehnke, Teddie Williams, Andrey Gavrilo, Robert Landon Dorssey, Esteban Arguedas, & Amiri

Group Panel on Virtual Worlds are Hot: Hot Beds of Learning

Faculty Advisor: Aletha Stahl

Moderator: Becky Jestice

Panel Abstract: Two groups will present the results of their research from the French/Management Virtual Worlds in Education Ford/Knight. Each group will implement their modules in Earlham classrooms; during the presentation they will present the result of their assessments. The modules are: “Mardi Gras a la Martinique” and “Parable of the Sadhu.”

Abstract 1: The BNPM program is interested in virtual worlds as an alternative learning experience. Our proposal is that virtual worlds are an untapped resource for the
department to utilize. Virtual worlds allow students to collaborate and experience situated learning in more authentic contexts than a traditional classroom can often provide. This research is experimental for Earlham students, but there is evidence within the education community for the success of learning in the virtual worlds. One way that the virtual world has a potential edge over classroom learning is the potential for virtual worlds to enable empathy and similar emotions in our students as we educate about ethics, personal responsibility, and communal responsibility. We created a space in Open Wonderland for students from Strategic Analysis and Action to experience the Parable of the Sadhu (McCoy, 1997, HBR). We are conducting an experiment between the virtual world and the traditional classroom case study experience. We want to compare outcomes such as a) student knowledge about general ethics, b) satisfaction with learning experience, and c) application to business a setting. This presentation will show our module and demonstrate what we have learned.

Abstract 2: A group of students working with Mardi Gras à la Martinique will discuss their decisions in designing a virtual educational experience that takes into account Martinique's sunny Caribbean setting while not overlooking the complex relationships that its inhabitants experience as a former colony of France that is now fully integrated into France. They will elaborate the learning goals of an experience in which students of French use functional communicative skills practiced in the classroom to negotiate challenges in their new setting and learn about Martinique's cultural and social landscapes a virtual world set in Open Wonderland. The paper will also discuss an assessment of the learning module's effectiveness and the presenters' ideas for using virtual worlds in second language acquisition.

Keywords: Virtual Worlds, Language Acquisition, Education

Andrew Hood, Abby Primack, & Caitlin Clark

Using GIS to Identify and Predict Environmental Racism in Indiana

Faculty Advisor: Wendy Tori

The environmental racism movement calls for the recognition that minority communities and individuals are burdened with a disproportionate share of environmental risk. In this project, we examine the relationship between race, socioeconomic, location, environmental and health hazards in Indiana using Geographic Information Systems. Specifically, we investigated the location of hazardous waste sites, industrial emissions, groundwater contamination, and negatively associated health effects including birth defects, endocrine disrupters, and cancer. Using data obtained from publicly available government and census websites, we investigated the correlation between geographic equity and hazardous environmental exposure in Indiana. Our results suggested that minority groups (black, asian, hispanic) lived in areas of higher environmental and hazardous impact. Furthermore, areas with a higher environmental and hazard index were more likely to be in areas of high child poverty. Our results suggest correlation between a hazardous index and negative health effects, mainly birth defects. However, we did not find significance relating industrial emissions and health effects, but given a longer study and access to more specific data we believe that we might find a correlation between emissions and negative health effects.

Keywords: Environmental Health, GIS, Industrial Emission
Jane Hu, Chiara Azzaretti, Lydia Jean Miller-Jewett, Caroline Rosoff, & Erin Marguerite Stone

Vendredi/Friday, the Carib Amerindian

Faculty Advisor: Annie Bandy

This Ford/Knight collaborative research project proposes to research the Amerindians who populated the Caribbean islands before and during the contacts with the first European settlers. Through the observations of 17th C. witnesses as well as the contemporary activities of the group Karisko in Martinique, we will explore the travels of the Kalinagos, their culture and relation with the environment. It will provide the foundation to study the character of Vendredi/Friday in three texts: Daniel Defoe, *Robinson Crusoe*. (1719), Michel Tournier, *Vendredi ou les limbes du Pacifique*. (1967) and Patrick Chamoiseau, *L’Empreinte à Crusoé*. (2012). In examining various representations of the Amerindian character whether in texts, in films or in images, we will attempt to answer the question: Who is Friday?

*Keywords: Identity, Friday, Carib Amerindien*

Sequoia Hudson

Success in Inner City Schools-How to Make Students Succeed in Unsuccessful Environments

Faculty Advisor: Thor Hogan

Inner city schools in the United States and around the world have tried to find solutions on how to make the students they teach more prepared for higher learning and beyond, usually without success. There are, however, significant exceptions. In order to explain the success of these schools and try to apply it to other schools, I have looked through a series of published works and articles from a number of sociologists and ethnologists in the hope of finding ways for the students of inner city schools to succeed. There are many different considerations for each individual school, however it is possible through school, district, and state policies to find excellent solutions for the students, parents, and teachers involved in the learning process.

*Keywords: Inner City, Policy, Success*

Anna Juras, Andrey Gavrilov, Justyna Gawel, Welling Hall, Nidzara Helja, Anastasia Mikhailov, Julia Orzel, Samarjeet Thapa, & Ximena Banegas Zallo

Group Panel on From the Peace Encyclopedia to the Peace Classroom

Faculty Advisor: Welling Hall

Moderator: Welling Hall

The focus of the project is directed to an interactive adaptation of peace encyclopedia entries to the classroom. Our lessons are accompanied by images pertaining to the topic and the development of the MuseoPedia. Our work coincides with the visit of environmental reviewers of the encyclopedia to campus.

*Keywords: Peace Encyclopedia, MuseoPedia, Lesson Plans*

Kübra Kaşıkçı

Faculty Advisor: Rachael Reavis

Feng Shui: Lifestyle or Science?

Despite feng shui’s popularity in architecture and design, there is little scientific evidence supporting its positive effects on people. By looking at the overlap between feng shui and environmental psychology through focus on restorative quality and control, this study
investigated whether a classroom in a feng shui set-up caused higher levels of harmony and cooperation between participants, and whether interaction with the classroom intensified feng shui’s effects. Eighty undergraduates completed a puzzle in a feng shui or regular classroom with an interaction or no interaction condition. Results show no significant effect of room-type on cooperation or harmony, but there was a main effect of interaction and a significant interaction between the feng shui and interaction conditions on the percentage completion of the puzzle.

Keywords: Feng Shui, Environmental Psychology, Cooperation & Mood

Kübra Kaşıkçı, Arielle Webb, Lena Flores, Olga Galperin, Aubrie Hampp, & Sarah Kenny

Sibling Relationships and Delay of Gratification

Faculty Advisor: Rachael Reavis

We are investigating how positive and negative or no memories of sibling interactions and the quality of sibling relationships predict the ability to delay gratification. Studies have shown that siblings sometimes play a role in the development of Theory of Mind (ToM) and that ToM is positively related to executive functioning (EF), which includes the ability to delay gratification (Cassidy et al., 2005; McAlister & Peterson, 2006). As the quality of a sibling relationship is a statistically significant predictor of ToM and EF, we will examine whether it plays a role in delaying gratification (McAlister & Peterson, 2006). We will prime subjects with (positive, negative, or no) sibling-memories and test their ability to delay gratification for the self (a larger reward later for the self over a small reward now), with the sibling (an identical reward for sibling), and with an element of “unfairness” with the sibling (an identical small reward for the self and sibling or a medium reward later for the self and a larger reward later for the sibling).

Keywords: Executive Functioning, Delay of Gratification, Sibling Relationships

Sarah Kenny

The Effects of Perpetrator Gender and Type of Rape on Attributions of Responsibility

Blame

Faculty Advisor: Maggie Thomas

Victim-blaming is a negative social response that emphasizes the victim’s role and deemphasizes the perpetrator’s role in a sexual assault. Previous studies have found that the level of blame can vary in relation to the details of the case. Victims of intimate partner rape are blamed more than victims of acquaintance rape. Attributions of blame are affected by situational factors, such as the survivor’s relationship to the perpetrator and the perpetrator’s gender. However, many of these studies have treated attributions of blame (judgment of value) as interchangeable with attributions of responsibility (judgment of cause). The present study investigates how perpetrator gender and survivor/perpetrator relationship affect both types of attribution. I have three hypotheses: 1) A female perpetrator will be blamed less for a sexual assault, 2) Assault committed by a female will be considered less traumatic than an assault committed by a male, 3) A survivor of intimate partner rape will be held more responsible than a survivor of acquaintance rape.

Keywords: Victim-Blame, Perpetrator Gender, Attribution
Sarah Kenny, Lena Flores, Olga Galperin, Aubrie Hampp, Kübra Kaşıkçı, & Arielle Webb

Thoughtful Friends: An Examination of Executive Functioning, Theory of Mind, and Friendship
Faculty Advisor: Rachael Reavis

Peer conflicts challenge children to balance their own wishes with the wishes of others. Managing conflict requires complex skills, including the ability to simultaneously consider multiple responses to conflict, to successfully implement one or more responses to conflict, to shift attention away from conflict, and to inhibit behavior. Previous research suggests that conflict management is associated with cognitive abilities such as theory of mind (ToM) and executive functioning (EF). ToM is the ability to understand that other people have independent thoughts, desires, and emotions. Being able to appreciate different perspectives helps children negotiate conflict. Alternatively, EF controls for abilities like planning, memory retention, shifting attention, and inhibiting behavior. Though frequently used in peer interactions, EF skills have not been extensively studied in social contexts. Understanding how EF contributes to conflict management may improve our knowledge of how these concepts contribute to children’s friendship quality. Does EF and ToM predict overall friendship quality? Do responses to friendship conflict mediate the association between EF, ToM, and overall friendship quality? Thus, the present study investigates the potential relationship between ToM, EF, and friendship quality using 40 children, ages of 7 to 9.

Keywords: Friendship, Theory of Mind, Executive Functioning

Jinhee Kim & Alex Seewald

Molecular Dynamic Studies of Z[WC] DNA and the B to Z-II DNA Transition
Faculty Advisor: Michael Lerner

Although DNA is most commonly found in the right-handed B-DNA structure, it is known that biologically active systems also contain left-handed Z-DNA. We investigate the possibility that Z[WC]-DNA serves as an intermediate structure in the B to ZII transition. Molecular dynamics simulations indicate that Z[WC] nonamers are stable structures with the current AMBER nucleic acid force field. Steered molecular dynamics simulations indicate that, for collective transitions of the whole strand, the B-Z[WC]-ZII pathway may have a lower free-energy barrier than the direct B-ZII pathway. We then used both steered and targeted molecular dynamics in combination with umbrella sampling to produce potentials of mean force for the B to ZII transition along both pathways.

Keywords: DNA, Molecular Dynamics Simulation

Leah Koch

Does Time Really Fly When You’re Having Fun? The Effects of Memory on Time Estimation Tasks
Faculty Advisor: Rachael Reavis

This study analyzed the relationship between memory – through written recall – and time estimation. The POMS (Profile of Mood States) was used to assess the degree to which participants were affected by their memories after time estimation. The study was a 1 x 3 within study, with all participants completing all three levels of the independent variable. The participants were counterbalanced. There was no significance found between type of memory that participants were asked to recall and the time lapse that they reported. There was slight significance in performance difference between male and female participants, with females
reporting more accurate time estimates than the males. Overall all participants over estimated the time duration across all three levels.

Keywords: Time Lapse, Memory

Aditya Krishnan, Clarice Perryman, Qianyi Luo, & Martha Byrne
Group Panel on McMurdo Station: 2098
Faculty Advisor: Martha Byrne
Moderator: Martha Byrne
Panel Abstract: We examine aspects of the Winter Olympics including how climate concerns affect which cities are chosen to host, what factors affect counties’ participation, and how birthplace is related to participation. We will employ Geographic Information System (GIS) data to explore how these factors may be affected by climate change.

Keywords: Winter Olympics; Global Climate Change

- **Bidding Processes for the Winter Olympics by Clarice Perryman**
  Climate change may greatly affect which cities can host the Winter Olympic Games in the coming decades. Throughout the last few host city bidding process, the International Olympic Committee has become increasingly concerned with issues of climate, weather, and the environment as a whole. By examining the candidate city questionnaires and subsequent evaluations of potential host cities for the 2010, 2014, and 2018 Winter Games, we have identified what climate factors the International Olympic Committee weighs most heavily in their consideration of Games locations. We collected weather and climate data for all candidate cities for the 2010, 2014, and 2018 Winter Games. We will discover what, if any, correlations between climate factors of potential cities and whether or not they were selected as hosts through running regressions on all data. Additionally, we will analyze what climate factors are most emphasized IOC reports and how heavily weather and climate weigh on host city decisions by collecting and analyzing data from city evaluations. We hypothesize that climate does play a significant factor in host city selection.

- **Seeing Patterns in Winter Olympic Participation and Hosting via GIS by Qianyi Luo**
  Climate data for the past and present day we collected will be modelled within GIS (Geographic Information System). The analytical procedure generates hypotheses defining the relationships between climate change and the selection for hosting cities of winter Olympics. These relationships are then used to model the selection of hosting city directly from socioeconomic factors and predict impacts of climate change. The analysis takes account of both direct impacts of climate on winter Olympics and indirect effects manifested through making suitable hosting city decisions. The analytical procedure is implemented as a generic tool for inductive spatial analysis in GIS. We are also going to build a winter Olympics suitability model in GIS to find out the suitable areas/cities that could hold winter Olympics in the future (ex. 50~100 years later) worldwide. Finally, we are going to present the suitable areas for winter Olympics in the future. We will generate a suitability map based on the synthesized analysis of temperature, precipitation, elevation, humidity, fog, air quality, and socioeconomic factors. Also, we are going to explore and display the patterns of medal-winners’ hometowns to see if most winter Olympics outdoor-events medal-winners come from areas that are suitable.
Key Attributes of Successful Winter Olympic Nations by Aditya Krishnan

The Olympics are one of the most recognized sporting events on the planet. Any nation that achieves success at the Games reaps benefits both international and domestic. This provides quite an incentive for nations to succeed. The Russians have spent over $51 billion dollars to put on the Sochi games, and the success of the games has reflected well on both the nation and infamous leader Vladimir Putin. This leads us to ask what factors cause a nation to be successful at the Olympics. We will collect data on a variety of different attributes for all the countries that have participated in the winter games. These will include geographical, economic, demographic, and political statistics. We will then compare the attribute for different countries against their successes at the Winter games, measured by medals. Ultimately, the goal will be to determine what factors play the largest roles in Winter Games success, and find out if these are factors that are under the control of the nation or are unchangeable.

Hometown Bias in US Winter Olympic Athletes by Martha Byrne

The United States has participated in every Winter Olympic Games since their inception in 1924, and, other than Norway’s, its athletes have won more medals than those from any nation. A handful of athletes competing for the US have been born in other nations, but the vast majority of the competitors have lived their entire lives in the US. However, distribution of Winter Olympic athletes is not consistent across the states. Economics, state population, and state climate are all related to where our olympic athletes hail from, and preliminary analysis indicates that local climate is closely related to the origins of the athletes when state population is controlled for. The US is already seeing effects of global climate change, and those effects will become more pronounced into the future. Once we have a better understanding of how much of a bias state climate introduces into the make-up of our olympic team, we will use several climate change models, from the most dire to the less extreme, to make predictions about how the changing climate may shape our ability to participate in and train for the Winter Olympic Games.

Dakotah Lambert, Margaret Ann Fero, & Andrew Dai

Abstract Categories of Phonotactic Constraints

Faculty Advisor: Jim Rogers

We are studying cognitive complexity of phonological stress patterns by modeling them as constraints on strings of symbols representing syllables of varying weight and stress. Previously, we factored stress patterns for the 402 languages of Heinz's catalog[1] into simple patterns with easily-established complexity, identifying 144 distinct primitive constraints as the patterns' factors. Languages' stress patterns are similar inasmuch as they share primitive factors. Herein lies an idea of the relationship between languages that is richer than considering languages similar if and only if they share identical overall metrical stress patterns. Additionally, all but four patterns can be captured at extremely low levels of complexity if constraints on both precedence and adjacency are permitted. In this work, we group the primitive constraints into abstract categories independent of syllables' specifics, aside from distinguishing between requirements of the same type or attention to distinctness. The 18 abstract categories represent constraints' underlying forms, and each category's constraints share the same cognitive complexity. By identifying constraints with common underlying forms, the abstract categories highlight relationships amongst primitive constraints much like the primitive constraints
highlight relationships in the overall patterns, thus characterizing which aspects of a pattern make it relatively more complex than another. [1]http://phonology.cogsci.udel.edu/dbs/stress/

Michael Marvin & Samantha Bielanski
An Examination of Appropriation between African American and Asian cultures
Faculty Advisor: Joann Quiñones
Our research will look at historical and contemporary accounts of African American experience in Asia- particularly the intersection between cultural appropriation of African American identity and symbols by Asian peoples, and the subsequent cultural appropriation of traditional Asian cultural symbols in the African American community. We will look at the interplay between borrowed images and subcultures, examining documented historical and modern instances of appropriation, from Commodore Perry’s Minstrel shows to the Wu Tang Clan’s borrowed Kung-Fu aesthetic, and explore the degree to which this unique semiotic symbiosis succeeds or fails at accurately representing the identities and experiences of both their parent cultures and the cultures into which they are adopted.

Keywords: African American, Literature, Asian

Leslie Massicotte
Violence of the Name: How naming the M23 Rebel has perpetuated conflict in the Eastern Congo
Faculty Advisor: Joanna Swanger & Jonathan Diskin
This paper seeks to give a background and context to the emergence of the M23 rebel group in the eastern Kivu region of the DRC. I use primarily the work of social theorist Judith Butler to critically unpack the M23’s existence and examine the reasons behind the perpetuation of the Kivu conflict. I argue that the concept of naming the M23 as a rebel group drastically limits policy approaches that seek to end the violence in that the label of “rebel” implicates the designated actors as illegitimate and irrational soldiers. With the M23 relegated to a realm of illegality, and essentially not taken seriously, policy makers overlook crucial factors when attempting to address this conflict. I focus on one factor in particular: the rationale behind many DRC actors, like the M23, using violence as a means to survive amidst a perpetual condition of violence. This context deserves ample recognition in the pursuit of peace in the Kivu region.

Keywords: Rebel, The Name, Policy

Yamukumba Mbaya
Policy Brief
Faculty Advisor: Thor Hogan
My poster presentation will present research on the new measures being taken by the UN are part of a larger framework, “The Peace, Security and Cooperation Framework for the Democratic Republic of Congo and the Region”- which outlines national, regional, and international actions intended to end violence. Amongst DRC’s agenda is the objective to reform the security sector and to secure state authority, particularly in the east of the country.

Keywords: Policy, Congo, Reform
Holly McDonald
A Look at Australia's Asylum Seeker Policy
Faculty Advisor: Thor Hogan
Australia’s immigration policy has become a model for national integration and multiculturalism throughout the world. However, Australia’s asylum seeker problem and its maritime migration policy has drawn negative attention due to numerous deaths at sea, claims of human rights violations and unclear shifting of policy due to change in government. I will therefore examine Australia’s immigration policy, exploring only the asylum seeker and offshore processing policies, and analyzing the problems and politics that have dictated policy changes and their consequences. As a regional leader and developed nation, Australia is a desirable location for refugees coming from Afghanistan, Sri Lanka and Indonesia. Australia thereby holds most of the burden and responsibility for maritime migration, which also affects its diplomacy and foreign policy. In such a context, Australia’s asylum seeker immigration policy has always been problematic and controversial, having to deal with duties under the UN Refugee Convention, public opinion, and financial and legal complications. Australia is looking to the new government to contain the all time high of boat arrivals and implement an effective and popular policy. Therefore, my recommendations will serve as solutions that can contribute to this critical and sensitive debate dominating Australian politics.

Keywords: Australia, Asylum, Policy

Kristin Muterspaw, Ruth Lewis, Matthew Krumlauf, Anna Plotkin-Swing, & Deeksha Srinath
Geocode Your World: Making It Easier To Do Field Science
Faculty Advisor: Charlie Peck
The ability to easily record geocoded data from a variety of sensor platforms is invaluable to many disciplines. Unfortunately, current systems used for collecting and analyzing such data are often cumbersome and expensive. Different hardware often uses unique software and post-processing protocol, resulting in a complicated process to compile and analyze the data. Our group designed and built an inexpensive, unified system of sensors and platforms through which to collect and record geocoded data from soil, water, gas, and ambiance. The initial designs were tested in Iceland during the summer of 2013. Field data was collected via the sensors, as well as several soil and water samples intended to undergo microbial analysis. Ultimately, these tools will result in an easier, more available system with which to evaluate geographical data. Future work includes refinement and publication of the hardware designs and software, as well as completion of DNA analysis, and further testing in Iceland.

Keywords: Expeditionary Science, Experimental Education, Multi-Disciplinary Science

Micky Jo Myers
Improving Consensus at Earlham College
Faculty Advisor: Len Clark
This paper explores the obstacles that prevent the successful application of consensus at Earlham College. The research included examining the relevant documents pertaining to the stated intentions for operating under consensus at Earlham and interviewing a diverse selection of faculty members. Finally, the paper proposes a possible solution that would result in a more effective use of consensus on Earlham College campus.

Keywords: Consensus, Quakers, Earlham
Julia Orzel
Competing Narratives of the Official and Alternative Belarusian National Identity
Faculty Advisor: Helena Kaler
This research focuses on the examination of the national identity of the current Republic of Belarus through a careful analysis of the historical, political and economic realm of the country. A specific focus is placed on the Soviet history of the country, which began on January 1st 1919 and lasted up until December 26th 1991, when the Belarussian Soviet Socialist Republic was proclaimed. This research focuses specifically on Belarus and its Soviet history because while most of the post-communist countries have become more European/Western oriented, Belarus appears to strongly hold on to a pro-Soviet identity and continues to lean towards Russia as a stand in for the Soviet Union within its economic and political affairs. This research aims to recognize why there is not a strong Belarusian national identity emerging after the fall of the Soviet Union in order to determine what is stopping Belarus from moving forward in identifying a distinct feeling of nationalism and becoming more independent in politics as well as more developed in economics.

Keywords: Nationalism, Belarus, Identity

Johanne Osbakk
Labor Unions, Income Inequality, Distribution
Faculty Advisor: Jennifer Seely
This article examines the relationship between labor unions and the level of income inequality observed, with a primary focus on OECD countries. The focus of the paper is principally concerned with the political aspect of labor unions and their role as political organizers and mobilizers. The working hypothesis is that stronger labor unions have the effect of decreased income inequality. This article argues that labor unions have this effect through two primary functions. The first is the more traditional role of labor unions, which through collective bargaining and organized labor activity, ensure higher and more equal wages. The second function is its role as a political organizer and mobilizer, which through its affect on the political process affect the distribution of public goods and burdens. As both of these processes serve egalitarian ends, the influence of stronger labor unions leads to lower economic inequality.

Keywords: Labor Unions, Income Inequality, Distribution

Kayla Parks, J.S. Willner, Deryk Bauer-Lee, & Kendra Worley
Group Panel on Mindful Learning: Creating Transformations
Faculty Advisor: Lyn Miller
Moderator: Lyn Miller
Panel Abstract: “Mindful Learning” is education for deep self-exploration, open inquiry, mind-body unity, and compassionate praxis. This panel will present this topic through an annotated bibliography of resources, developing programs at other colleges, and recommendations for curricular innovations at Earlham College. Additionally, we will experiment with some mindful practices together.

Keywords: Experiential Education, Awareness Based Learning, Alternative Ways of Knowing
Bibliosources by J. S. Willner
This part of the panel will present our collective bibliographic resources, concerning: theoretical and philosophical approach to the psychology of mindfulness, the science of mindfulness based therapy, practices for enhancing learning for children and adults, teaching mindfulness and contemplative pedagogy to educators, mindful practices and programs, mindfulness in spiritual traditions, and technology and mindfulness.

Programs by Deryk Bauer-Lee
This part of the presentation will introduce cutting edge programs, concentrations, and mindfulness methodologies being developed and practiced at such eminent institutions as: Naropa University, Brown University, Emory University, Vanderbilt University, and UCLA.

Recommendations by Kayla Parks
This portion will focus on how to enhance mindful and critical approaches already existing within the Earlham classroom by recommending innovative interdisciplinary methods and activities that can be applied to the curriculum and co-curriculum.

Practices by Kendra Worley
We will share three simple practices for fostering mindfulness in our daily lives and the classroom. One to help students practice mindfulness in the classroom, the next for teachers to encourage mindfulness amongst students, and finally a practice to increase mindfulness in our daily lives.

Kai Patricio
Learned Opportunities: Self-Reported Perceptions of Support of Students with Learning Disabilities
Faculty Advisor: Nelson Bingham
This research is observing the perceived support of students with learning disabilities in general education classrooms within the Richmond Community School system. The research hopes to explore the limited area of study concerning student perceptions. Participants were sampled from local elementary and intermediate schools and ranged in grade level from 1st to 8th grade. Participants were students that had been diagnosed with a learning disability and students who had not. Two difference scales were used in the study. An 11-item scale developed by Karimli, Ssewamala, and Ismayilova (2012) that was used with all participants. An additional 28-item scale developed by O’Rouke and Houghton (2006) was used with the intermediate students. The prior scale was used to have a consistent measure of students’ perceptions about classroom support across all participants, and the latter used to target specific support strategies. It is explored whether there is a difference in perceptions of support between students with learning disabilities and those without in a general education classroom.

Keywords: Learning Disabilities, Classroom Support, Perceptions
Caitlin H. Paul-Moran
Geology, Paleontology, Field Experience
Faculty Advisor: Andrew Moore
During two weeks of the summer of 2013, as part of an internship opportunity I was granted by the New Jersey State Museum, I took part in the efforts of a paleontology field school operating out of Red Lodge, Montana, which arranged daily geological surveys and fossil hunts throughout southern Montana and northern Wyoming. With this poster I will present how my experiences there have educated me in both the academic and more practical aspects of my chosen field of study.

Keywords: Geology, Paleontology, Field Experience

Nathaniel Pinheiro
Spanish Language Literature, Marxist Literary Criticism, Feminist Literary Criticism
Faculty Advisor: Kathy Taylor
Puerto Rican author Rosario Ferré is known for her short stories that approach the themes of oppression and social justice. La muñeca menor, written in 1980, and El medio pollito, 1981, are two such stories; the first is about a woman who practices the craft of doll-making after she is disfigured by an animal that permanently burrows into her leg, and the second is about a poor boy and a medio pollito (a baby chick born with only half of its body) who confront a villainous king in their pursuit of finding something meager to eat. Ferré weaves a different social criticism into the drama of each—La muñeca menor having a feminist focus and El medio pollito handling class issues—but these two commentaries are not exclusive of one another. I will connect the social criticisms in the two stories by studying both of them from a Marxist literary perspective and a feminist one to examine the way she creates oppression and resistance in her works of fiction.

Keywords: Spanish Language Literature, Marxist Literary Criticism, Feminist Literary Criticism

Abby Primack & Melanie Bourgeau
Measuring Epigenetic Changes in the Brain of M. sexta During Metamorphosis
Faculty Advisor: Amy Mulnix
Epigenetics, literally meaning "above the genome", refers to the patterns in the packing of chromatin that are both gained during an organism’s lifetime and inherited from previous generations. To study possible epigenetic changes during metamorphosis we used the tobacco hornworm, Manduca sexta, as our model organism. Given the significant physical and physiological changes that occur between larva, pupa, and moth, gene expression is differential, indicating that alterations in the epigenome are likely. The nervous system is of particular epigenetic interest due to the changes in hormone secretion in the days preceding metamorphosis. We are using Western Blots to study differential acetylation and deacetylation levels in the M. sexta brain. This will be done by testing for levels of acetylation of the H3 and H4 histone proteins and for levels of the HAT and HDAC protein complexes. The research is in current progress and we hope to use techniques such as QPCR as our work progresses.

Keywords: Microbiology, Epigenetics, Central Nervous System
Jelena Radmanovic  
**Financial Performance, Responsibility Questions, Corporate Social Responsibility**  
**Faculty Advisor: Becky Jestice**  
This paper introduces the main concepts of CSR and how they are shown in the performance of the company while questioning their impact on financial performance of companies. It looks into this influence from several perspectives: 'business as usual' period, time of an economic crisis, the influence of CSR on the investors (and through them on the financial performance of companies), as well as the future of CSR. In conclusion, I claim that there is a positive influence of engaging with CSR on the financial performance of companies.  
*Keywords: Financial Performance, Responsibility Questions, Corporate Social Responsibility*  

Jelena Radmanovic  
**Problem of Conditionality in the EU Foreign Policy Towards Western Balkans**  
**Faculty Advisor: Thor Hogan**  
This is a policy brief that looks into problems in the EU foreign policy towards the Western Balkans. It identifies conditionality as the key problem. This is curious as conditionality has been successful with all other applicant states. I look into work of many scholars, mostly from the EU and the US and explain in what ways and why conditionality does not work in case of the Western Balkans. Finally, I offer my solution for the problem and suggest how the foreign policy could be improved in relation to the problem.  

Kavi Ramburn  
**What Explains Remittance Flows Across Countries?**  
**Faculty Advisor: Welling Hall**  
Rapid globalization and the ever-growing interconnection between countries worldwide have led to an unprecedented surge in international migration over the past decades. With an estimated 232 million international migrants in 2013, global remittance flows have also reached record highs, totaling almost US$ 500 billion last year (IOM 2013). While numerous labor migration theories have been devised to explain migratory patterns across nations, few scholars have examined the factors that help explain the huge variation in remittance flows across different countries. Through my research, I will analyze the impact of GDP growth, unemployment levels, as well as democratic principles on the inflow of remittances. While past research has solely focused on GDP growth and unemployment rates as factors explaining the level of remittance inflow, I argue that a country’s democratic principles also influence the amount of remittances it receives. Furthermore, I undertake a case study of a “partially free” country and a “not free” country (as classified by Freedom House), to examine how democratic principles in each of these countries affect remittance inflows.  
*Keywords: Remittances, Migration, Democracy*
Kazondra Ramos
The Plasticity of the Native Language in Adult Second Language Learning
Faculty Advisor: Kinsey Bice, The Pennsylvania State University
Adult second language (L2) learning is difficult, for some more than others. Previous research has shown that adults rarely achieve the same level of proficiency in the L2 as learners who begin as children. Many different accounts have been proposed to explain this trend, but the majority is based on the assumption that the first language (L1) remains relatively unchanged throughout the L2 learning process. The current proposal seeks to evaluate this assumption and test the hypothesis that adult L2 learners whose L1 demonstrates the greatest flexibility and tolerance to change may achieve higher proficiency in the L2. Several studies have demonstrated that the L1 changes with L2 contact. This change may manifest as a cost in the L1, such as L1 inhibition and reduced access, and/or it may be reflected in an influence of the L2 on the L1. Evidence for this change is reviewed and the new hypothesis about successful adult L2 learners is described in detail. The proposed study is a cross-sectional investigation of three groups of adult L2 learners (beginning, intermediate, advanced) and matched monolingual controls. Two lexical-level tasks will be performed by all the participants first in the L1 and the L2 learners will return to complete the tasks in the L2. Predicted results are reported comparing within and across groups and tasks. Implications for the hypothesis are further discussed along with potential follow-up studies.

Keywords: Language Learning, Second Language Learning, Inhibitory Control

Marcos Ramos, Jr.
Racial Discourses and Hispanics- An Ethnography in Richmond, Indiana
Faculty Advisor: JoAnn Martin
Some people always have to prove who they are by producing the right documents, the rights papers, the right to be in the United States while others slip effortlessly past officials. With this ethnography proposal I am going to look at this issue through the eyes of some of the members of the Latino community in Richmond, IN. I would be exploring their perceptions of Hispanic community in the context of their lives in Richmond, Indiana as I am intrigued by the ideas of ‘no go areas’, its discourses and consequences. This ethnography focuses on shared senses of “no go” spaces and how immigrants learn about those spaces and incorporate that knowledge into their everyday movements in Richmond. No Go spaces are not necessarily about physical safety but include psychological, emotional spaces as well. Feeling of not belonging and the possibility of one getting unwanted attention has to deal with safety.

Keywords: Hispanic, Richmond, Areas

Eli Richman
Winning the Rally
Faculty Advisor: Thor Hogan
Presidential scholars have long noted the existence of a phenomenon where, following some international crisis, such as the attacks on September 11, 2001, the public approval of the U.S. President has a tendency to rise, in some cases dramatically. This is known as the “Rally ‘Round the Flag Effect.” Since this effect does not occur in every crisis scenario, my research seeks to show how through careful crafting of his message, the President has a direct role in motivating the people’s patriotism and therefore “winning” his rally. In order to demonstrate the differences in Presidential responses, my research evaluates six instances of international terrorism affecting
the U.S. or U.S. assets, and each President’s reaction to the crisis. Based on these six instances, my research demonstrates that when, immediately following a crisis, the President a) draws attention to the crisis and his reaction to it using the media, b) identifies an enemy or type of enemy in doing so, and c) uses retaliatory rhetoric, promising action against the enemy identified, then a rally will occur. All of these actions are necessary; if the President does not do any one of them, then he will not “win the rally.”

*Keywords: Rally 'Round the Flag, Public Approval Polling, Acts of Terrorism*

**Eli Richman, Gerald Sowah, Cephias Toninga, Scott Slucher, & David Schutt**
**Group Panel on The View From Space**
**Faculty Advisor: Thor Hogan**
**Moderator: Thor Hogan**

Panel abstract: Many of the weather and climate science successes of past decades were results of a series of satellites launched under the umbrella of NASA’s “Mission to Planet Earth.” Our research evaluated the history of this mission and tracked the development of Earth Observing satellites and their implications for climate science.

*Keywords: Climate Change, NASA, Satellites*

- **Eli Richman**
  My section of the chapter covers the development of satellite technology since the Earth Observing System has been in development. Because of budget shortfalls over the past several years, NASA has needed to change their mission profiles in several ways in order to continue development of the mission. This has meant that developed satellites have grown in size in order to capture a greater quantity of data, both to take advantage of the limited availability of launched satellites and because of the lack of a medium or small-class launch vehicle to launch smaller satellites. The changed profile has also seen the growth of “Earth Venture missions,” or sub-orbital missions such as instruments launched on aircraft and drones that accomplish many of the Earth Observing goals that satellites do, but at a fraction of the cost.

- **Gerald Sowah**
  My section of the chapter focuses on the role climate models play in advancing climate studies. The impact of climate related events are becoming more unpredictable over time; as a result, the value of credible climate information is increasing. Climate models are mathematical representations of physical, chemical, and biological processes in Earth’s climate system. Climate models are built to improve our understanding of climate trends. I discuss the benefits these models contribute to the public and private sectors: insurance companies, public policy makers, water and agricultural managers etc. Information about the future of the climate system comes from computer models that simulate the climate system. I also look at the many different kinds of climate models. They are all derived from fundamental physical laws such as Newton’s laws of motion and the chemistry and thermodynamics of gases, liquids, solids, and electromagnetic radiation. These are supplemented by empirical relationships determined from observations of complex processes such as ice crystal formation in clouds; turbulent mixing, and waves in both air and water; biological processes; sea-ice growth; and glacier movement.
- **Cephas Toninga**
  My section of the chapter presented an overview of the current state and future of NASA’s “Mission to Planet Earth.” It highlights the implications of proposed budgetary cuts on climate science and the capabilities of Earth Observation system. The section concludes by presenting a new strategy aimed at attracting increased investment from both the U.S government and the private sector. These new investments would prevent the loss of potential benefits that could come as the result of proposed budgetary cuts.

- **Scott Slucher**
  NASA’s Mission to Planet Earth has been one of NASA’s most successful missions. The information gathered from the satellite platforms has been critical to helping scientists, government officials, and private interests determine how the Earth, and its ecosystems work. Some of the most important research being gathered through this research is how the global climate is changing. Without a doubt, the MTPE/EOS platforms have shown us that human activity is directly affecting the climate. This section effectively lays out the ways that in which a policy window can be opened from the information gathered from the mission, using information gathered from the MTPE platforms, as well as policy recommendations from the National Academy of Sciences. Furthermore, this section focuses on two potential ways to action. One that takes the cautious pre-emptive approach to fight climate change and do some minor adaptation, and the other one being the result of a major natural disaster. Overall this project argues the first choice, adding in provisions to bolster NASA’s Mission to Planet Earth with financial security, believing it is a vital component to understanding the Earth and its systems.

- **David Schutt**
  The concluding chapter of the book pulls together the overall narrative of the rest of the book and seeks to find policy theories that can explain why Mission to Planet Earth was successful. The chapter explores how policy windows open, how NASA operates as a client bureaucracy, and how it requires a bundle of rationales to get anything approved through Congress anymore.

**Kathryn Rockefeller**

**Intelligent Appreciation: Marcus Mote Ushers in a New Quaker Acceptance for Art in the Richmond Community**

**Faculty Advisor: Julie May**

This research examines the life and career of self-taught Quaker artist Marcus Mote (1817-1898) who began his career as an itinerate painter and eventually developed a successful portrait business in Richmond, IN despite the Quaker disdain for the decorative arts. Primary sources for this research include portraits of Richmond residents as well as historical figures, maintained in the Earlham College Archives and Art Collection and at the Wayne County Historical Museum. I would also like acknowledge Opal Thornburg’s unpublished biography on Mote as a main source for research, as Thornburg is the premier authority on Marcus Mote. Marcus Mote’s personal journals, maintained in the Earlham College archives, also provided great insight into the personal, daily life of Marcus Mote.

*Keywords: Marcus Mote, Quaker, Artist*
Imani Russell & Teonna Taylor
Identity of African Americans
Faculty Advisor: Joann Quiñones
I will be looking at how identity of Africans and African Americans is shaped by imperialism through poetry. Focusing mainly on the country of Liberia, I hope to explore the complex history of the country and evaluate how that history is reflected in the literature. After this exploration I will make connections to literary works of the Harlem Renaissance, looking specifically at poems from Melvin B. Tolson, Libretto for the Republic of Liberia. One of the major purposes of my presentation is to demonstrate how art and literature is affected by culture and how a culture’s identity can be molded by its history.

Keywords: Literature, African American, Liberia

David Schutt
Impact of Working Relations on Bureaucratic Effectiveness in an Age of Politicization
Faculty Advisor: Thor Hogan
The United States’ federal bureaucracy over the past several decades has become increasingly politicized, as defined by an increase in the number of political appointees versus career civil servants in the top jobs of various government departments and agencies. It must be understood how the bureaucracy can best implement policy under these circumstances. I hypothesized that a key factor behind bureaucratic effectiveness in implementing policy is the working relations between an agency’s political appointees and its civil servants. To test this hypothesis, I have analyzed two case studies. The first examines how effectively policy can be implemented when working relations are bad, using the Department of Defense under Secretary Donald Rumsfeld as a case study specifically regarding his policy of military transformation. The second examines how effectively policy can be implemented when working relations are good, using the Environmental Protection Agency under Presidents Bush and Obama as an example of an agency that became more effective when its top administrator was replaced by someone who was willing to work with the agency’s civil servants rather than oppose them.

Keywords: Bureaucratic Working Relations, Working Relations Under Rumsfeld, Working Relations in EPA under Bush/Obama

Abe Shklar
The Vision of the Subconscious: Salvador Dalí & The Eye
Faculty Advisor: Julie May
This project examines the human eye as a popular motif in the work of Salvador Dalí. I will first explore Surrealist beliefs and the importance of the human eye according to the philosophies of Surrealists such as Andre Breton. Then, by analyzing the works and words of Salvador Dalí, I will examine the deeper meaning of the human eye as it relates to his personal life, his religious and philosophical beliefs, and his art.

Keywords: Salvador Dalí, The Eye, Art History
Eden Shroyer & Gwendolyn Claflin
How Nebraska Conference for Undergraduate Women in Mathematics Confrence Benefitted Us
Faculty Advisor: Julie Beier
We were invited to attend the Nebraska Conference for Undergraduate Women in Mathematics (NCUWM) by Julie Beier. We will share our experiences during the time that we were there. Various topics, such as networking, research, and overall feelings will be conveyed during this presentation.

Keyword: Math conference

David Scott Slucher
Sprawl City: How Moving Back to Cities Will Fight Climate Change
Faculty Advisor: Thor Hogan
In the United States there is a certain mentality that cities are dirty, crime filled places that should be avoided at all costs. This has prompted a large number of the population to leave them in favor of a quiet suburban life. This project argues that, with increased suburban sprawl, Americans have significantly increased their carbon output and are inadvertently living and extremely wasteful lifestyle. Overall I argue that by moving back to Urban Centers, Americans will naturally reduce their carbon output. Furthermore, through various taxation, and efficiency measures, I am going to look at ways to make Urban Areas the most sustainable places to live, overall attempting to craft a localized solution to a major problem.

Keywords: Climate Change, Urbanism, Energy Infrastructure

Gerald Sowah
Creating an Ideal Environment for E-Commerce in Ghana
Faculty Advisor: Thor Hogan
My research focuses on accelerating the e-commerce adoption process among SMEs (Small and Medium sized Enterprises) in Ghana. The adoption and usage of e-commerce enhances the competitiveness, productivity and efficiency of SMEs through the provision of increased access to ICT and as a key competitive tool that allows SMEs to survive and gain competitive advantage over rivals all over the world, as well as meeting the challenges of a borderless economy. For these reasons it is important to understand the contributing factors of e-commerce adoption and usage. There are five crucial factors that have thus far led to the non-adoption of e-commerce by SMEs. These include the high cost of implementation, lack of ICT knowledge and skills, lack of security and privacy and the lack of e-payment systems. Despite these difficulties, SMEs still need e-commerce as a matter of priority to manage their business in order to stay competitive. The government should support programs and projects to disseminate best practices, computer literacy, training programs, bringing together efforts to facilitate critical access to credit and financing for the successful implementation of e-commerce. This will serve as a strategic tool for maximizing the benefits of e-commerce in Ghana.

Keywords: E-Commerce, Ghana, Small & Medium-Sized Enterprises
Alyssa Stankiewicz  
The Eternal Essence of Satirical Love  
Faculty Advisor: Chris Swafford  
Love, as that phenomenon which pushes the human race to continue, is one of the most studied topics in philosophy and literature. The object of my research is to 1) study the works of Capellanus and Ibn Hazm, both of whom drew the majority of their theories from major ancient philosophers, and 2) examine two short story excerpts from El Ingenioso Hidalgo Don Quijote de La Mancha for supporting evidence that Cervantes used parts of multiple theories to construct his love stories. I am further examining the translation of satire in all of these works and how that affects their modern interpretations. Capellanus’s The Art of Courtly Love derives most of its theory about the origin and essence of love from El Arte de amar by Ovid, while the claims in Ibn Hazm’s El Collar de la paloma resemble more strongly the theories of Plato. One important common aspect of both theories is the assumed definition of the essence of love, a reunion between two parts of souls which were previously united but separated at creation. Cervantes uses this definition to construct multiple love stories within the context of Don Quijote’s adventures.  

Keyword: Satire, Love, Quijote

Hollis Stansbury, George Braithwaite, & William Sido  
Group Panel on Science, Technology, and Metaphysics in the Modern World  
Faculty Advisor: Kevin Miles  
Moderator: Kevin Miles  
Panel Abstract: Through a reading of Heidegger and Arendt, we will present an analysis of modernity examining topics including: the relation between subjectivity and objectivity, representation, and modern science and technology. We investigate the infrequently examined metaphysical foundations of our current relation to the world in the Western tradition.

- Philosophy without Metaphysics and Heidegger's Critique of Modernity by George Braithwaite  
  I examine Heidegger’s essay The Age of the World Picture, Heidegger’s reading of Cartesian metaphysics, and the history of philosophy. He argues for a re-conception of how philosophy approaches the world. The current manifestation of philosophy stems from the Cartesian certainty of the subject and derived objectivity of everything in the exterior world as it relates to the subject. This conception of “what is” defines the modern world in a singular fashion that limits our experience of being. The modern world is one example of historical epochs that, when read against the history of philosophy and how modernity understands that history, reveals several insights into the conditions of existence as such. This, if undertaken carefully, is what it means to perform a critical reading of history. The guiding principle of critical history is to expose the rational principles that guide the historical unfolding of being and thereby constitute the nature of what is or what can be. For Heidegger, this project is what it means to be truly philosophical, because critical history does not get caught up in the truths of a particular metaphysical epoch, but the underlying principles of being.

- Heidegger on Being Cognizant in the Modern Technological Age by Hollis Stansbury  
  Heidegger asserts in his lecture “The Question Concerning Technology” that we have been blind to the essence of technology. Technology has descended upon us, shaping the
way we see the world, demanding mobility for its own sake, and we have all the while acted as if it were under our control as a hammer in the hands of a blacksmith. I argue that Heidegger’s project in his work on technology is pointed at becoming cognizant of our condition. Through this awareness of technology as a way of relating to the world we can open a realm of possibility that is not necessarily blocked by a technological model. Heidegger does not argue that we can overcome technology; rather that recognition of our situation can expose the boundaries that have been set for us. I will argue, alongside Dreyfus, that Heidegger is primarily concerned with our relation to the natural world and technology, not with the danger a particular technology presents to nature. I resist the temptation to present a “better” relation to the world or a less damaging concept of technology, however, as these acts presuppose our control over technology and nature.

**Representation as Objectivity in Modern Science by William Sido**

I analyze the character of scientific knowledge relative to Hannah Arendt’s concept of World in The Human Condition. My reading is informed by Martin Heidegger’s essay “Age of the World Picture”, with its critique of the metaphysical foundations for modern science. This critique entails an investigation of instrumentality and mastery, focusing on how Cartesian metaphysics prepares modern man’s attempted mastery of the world as picture through objectifying representation. Arendt claims that humanity requires the objective World as a protection from time to maintain their identity and collectivity. She concludes that scientific knowledge fails to provide the object character of World, instead offering an objectivity whose certainty only offers security to man as Cartesian subject or at the structure of mind. For Arendt, this “objectivity” insufficiently provides stability for humanity, casting each man back into his mind away from Nature or the artificial World that can be held in common.

**Keywords:** Technology, Objectivity, Metaphysics

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Eboni Stevens

**A Review of Business Practices and Japanese Culture**

**Faculty Advisor: Becky Jestic**

Expanding a business internationally has become a common objective in today’s global market. However, deciding to expand a business internationally is only the first obstacle. Finding ways to effectively interact with people in differing cultures is another obstacle. Because culture is such an intricate subject to tackle, cultural dimensions provide an easier way to compare and contrast different cultures by providing certain dimensions to which one can compare and contrast, and attribute certain actions and habits shared among people of the same culture. These dimensions constitute a cultural framework. This research contrasts Japanese and American culture in these frameworks and how they are implemented in the business setting. Knowing these differentiations can mean the difference between a failed attempt at a cross-cultural business venture and creating a secure business relationship with a different culture that could be utilized in the future. This study also constructs a unique cultural framework through literary review in which to view Japanese and American business relationships. Culture is a highly complex concept and its essence is not easily captured in words. An adequate cultural understanding of the Japanese has the potential to influence greatly the trust between parties, which leads to a strong relationship between the two.

**Keywords:** Business, Cultural Differences
Zoë Stringer
The Cuban Revolution's Influence on Amiri Baraka's Writing
Faculty Advisor: Joann Quiñones
This essay explores Amiri Baraka’s internal struggle over maintaining political engagement in a systemically flawed framework and contextualizes this into his poetry, essays, and other literary works written after 1960. Immediately following the social and political revolution of the 1950s, Baraka traveled to Cuba to witness the social uprising and help generate support for the nation post-revolution. Baraka’s experience in Cuba led him to publish a travel narrative, Cuba Libre, marking a distinct shift in his political ideas and style of writing. Baraka returned to the US, post-Civil Rights Movement, with a reclaimed vision for revolution. As Todd Tietchen describes, Baraka believed the Civil Rights Movement lacked the intensity of a tremendous social revolt due to a national political sphere “where preservation of the national community and peremptory ideas sets a pre-discursive horizon on the discussion of social problems.” Cuba had become a symbol for resistance against white supremacy, and Baraka utilized this influence to model essays and criticism on the hypocrisy of tokenism and marginalization of a post-Civil Rights US.

*Keywords: Amiri Baraka, Cuban Revolution, Poetry*

Nancy Taylor, Hannah Fox, Yoni Glogower, Risa Nisiguchi, Caitlin McGrath, Joann Quiñones, Natalie Reitz, & Elizabeth Tipton
The Colors of Earlham: A Ford/Knight Project
Faculty Advisor: Nancy Taylor
Until the first textile dye was synthesized in 1856, all color on fiber came from natural dyes, from plants, animals and minerals. What if we could only have colors that come from our own local, natural sources? For this Ford/Knight course we explored the range of colors we could create from the plants that grow on Earlham’s properties: Back Campus, Reller’s and Wildman Woods. We worked only with wild growing, native and non-native plants, and only those that we could collect sustainably, without damaging plant populations. We tested 54 plants, most on three fibers and with four mordents and two after-baths, producing a total of about 1,200 samples. Our research goal was to discover the palette of colors available from Earlham.

*Keywords: Dyes, Plants, Fibers*

Teonna Taylor & Imani Russell
Harlem Renaissance, Langston Hughes, African American Identify
Faculty Advisor: Joann Quiñones
African American writers during the Harlem Renaissance attempted to form their identities via establishing black pride and self-determination. The establishment of African-American roots was essential in their fight to instill pride in African-American identity and heritage. Africa, although romanticized, was used as a source of strength and site of heritage. Africa in Harlem Renaissance writing was used as a symbol of slavery versus freedom.

*Keywords: Harlem Renaissance, Langston Hughes, African American Identify*
Cephas Toninga  
Resilience Building in Emerging Economies  
Faculty Advisor: Thor Hogan  
The proposed policy brief will focus on policy options to limiting the effects of global economic crises on emerging market economies. Developing countries are typically characterized by relatively underdeveloped social, political and economic institutions which limit the state’s ability to facilitate sustainable development. In the past few decades some developing countries have come to be known as emerging market economies as a result of increased industrialization amidst still underdeveloped institutions. In an attempt to hasten the development process, many developing countries have adapted economic liberalization (Neoliberalism) policies which have opened up domestic markets to foreign investment and thus increased the level of economic integration within a volatile global economic system. Though Neoliberalism has brought about development, it has also left many emerging market economies susceptible to global economic crises which spread across states as a result of the contagion effect. The contagion effect is the process of transportation of economic shocks from one country to another within them same economic network. Unlike their developed counterparts, the effects of global economic crises are further exacerbated by weak domestic institutions which lack the capacity to cope with the pressures of global crises. Consequently, these countries experience severe and sometimes irreversible drops in economic development and standards of living which may lead to political instability and thus further destabilization of the state. The research paper will focus primarily on policies which can help build resilience in the developing economies as a means of reducing the effects of economic crises.  

Keywords: Developing Economy, Resilience, Growth  

Hoang Tran  
Measuring Diffusion Coefficient Using Non-Equilibrium Technique  
Faculty Advisor: Michael Lerner  
In the past, the experimental mass diffusivities between various substances have been extensively investigated. However, there is still a great lack of available theoretical data because the traditional approach of letting the solute diffuse freely is computationally expensive in simulations. Our investigation offered a novel, reliable solution by applying a constant force on selected molecules. The mobility constant and diffusion coefficient was then calculated from the obtained terminal drift velocity. To reduce the background noise from the thermal fluctuations, we ran multiple simulations of different initial conditions and averaged the data over the ensemble. The results are generally found to be within a factor of 1.5 of the experimental constants. Compared to the standard method of using mean-square displacement, this technique offers both a much faster convergence rate and a well-suited scheme for parallelization.  

Keywords: Diffusion, Membrane, Non-Equilibrium  

Benedikt Urban  
Paths to Prosperity in Developing Countries  
Faculty Advisor: Thor Hogan  
This policy brief targets political actors and policy makers in developing countries that advocate for Import Substitution Industrialization (ISI) as the sole pathway to advanced industrialization. ISI strives to make a developing country more self sufficient by hindering outside competition thereby allowing the domestic economy to ripen. It is intended to solve problems that have
hampered sustainable economic growth and development. Evidence has shown that ISI was beneficial and in fact an inevitable route to initiate the first stages of development. However, I argue that many countries have employed ISI policies to the extent that it has created an unsustainable economy and hence slowed their path to industrialization. Over protectionism can prevent a country from exploiting the benefits of advanced capital and reduces competitiveness against the global economy. This policy brief contends that ISI is an inevitable first step. Yet, once a level of efficiency and production capacity has been reached, the government should impose Export Oriented Industrialization (EOI). EOI intends to emphasize on economic growth through exports creating access to foreign currency for additional purchases of advanced capital. Immersion into EOI with ISI as a prerequisite creates a strong platform for eventual prosperity.

Keywords: Economic Development, Developing Countries, Import Substitution Industrialization

Michael Vinikoff
A Policy Recommendation in Favor of a Compulsory Voting System for the United States
Faculty Advisor: Thor Hogan
In a world with a wealth of democratic styles, the presence and type of elections is far from immune to controversy. This is to the point where a mandate for citizens to vote is up for debate. Democracy and free action seem to come to a head at this issue. How can we maintain a free society without widespread participation in the electoral process? What does it mean for freedom when the people are legally pressured to participate? In the United States, voter turnout has been relatively stagnant. One might dismiss the issue as having to do primarily with constituent apathy or a lack of interest in the political system, but I would insist that, when presented with turnout numbers like 55% or 60%, there is reason to look askance at our current voluntary electoral apparatus. Through thorough analysis of current material on voter turnout and its remedies as well as the countries where compulsory voting is present, I seek to present a cogent and persuasive argument in favor of a policy establishing a compulsory voting system in the United States.

Keywords: Voting Reform, Policy Proposal, Compulsory Voting

Arielle Webb
The Effects of Physical Facial Attractiveness on Interpersonal Attraction and Food Intake
Faculty Advisor: Rachael Reavis
Ever contemplate why you may eat vegetables more often with one friend, and brownies more often with another? Social psychologists have found that environmental factors may socially influence how we eat, with the most immediate influences being imposed by the people we eat with. According to previous research, the body size of our eating partners and the interpersonal relatedness we feel towards them may affect how we eat in their presence. Considering the suggested effects of physical appearance on eating behavior, the present study investigated the effects of facial attractiveness on food intake and interpersonal relatedness. Eighty-two undergraduate students (male: N=28; female: N=54) enrolled in a psychology course at Earlham College participated in this study (age: M=19.37, SD=1.3). Participants rated the facial attractiveness of a male or female model in a headshot photo, and then rated their interpersonal relatedness towards the model after reading about their personal qualities, which included eating habits. The participant’s interpersonal rating and the amount of food they ate measured the effect
of facial attractiveness. Although the participant’s food intake was not significantly influenced by the facial attractiveness of the photo, the present study provides further insight into research regarding social influences on eating.

Keywords: Social Influence, Eating Behavior, Social Psychology

Yasas Wickramasinghe
Urban Revitalization and Small American Towns
Faculty Advisor: JoAnn Martin
This thesis examines the driving forces behind the urban regeneration in small American towns through an ethnographic study of the revitalization of downtown and depot district of Richmond, Indiana from 2006 to 2013. By examining the urban revitalization in this community, I demonstrate the differences in the urban revitalization processes between large and small cities. I used two major research strategies: (1) ethnographic interviews and (2) Participation observation. Furthermore, additional data has been collected from archives, newspapers and published reports. Thesis challenges the idea that urban revitalization in the United States occurs through similar mechanisms in large and small cities. Moreover, the thesis contributes to the thin literature available on urban revitalization in small cities throughout the United States.

Keywords: Urban Revitalization, Gentrification, Small Towns

Benjamin Yee, David Loring, Gilbert Bailey, & Tuguldur Baigalmaa
HERMES (Hardware Enabling Remote Measurement for Educators and Students)
Faculty Advisor: Charlie Peck
We present an inexpensive spectrophotometer using commodity optics and arduino compatible microprocessors that can be controlled over a wireless link. By using open-source arduino compatible hardware like Intel's Galileo development board and 3d-printed structural components, we can drastically reduce the cost of basic chemical instrumentation. Furthermore, the use of an open platform enables diverse instruments to share the same controller, and allows students and educators to extend their instruments with new functionality. As a demonstration of this, we have equipped our spectrophotometer with a wireless link, enabling it to operate inside a sealed glove box.

Keywords: Arduino, Open-Source, Inexpensive
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