Earlham College’s
6th Annual Research Conference

April 13th - April 15th, 2015
6th Annual Research Conference

Earlham College
Richmond, Indiana
2015

Conference Steering Committee:

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Welcome Letter

Members of the Richmond and Earlham College Community,

It gives us great pleasure to welcome each and every one of you to the Earlham College 6th Annual Research Conference!

This event is an opportunity for the students here at Earlham to share their research and scholarly projects. We have a wide variety of work from multiple disciplines across the college. We hope that you will enjoy the breadth of scholarship at our conference 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 6th Annual Research Conference planning committee, welcome and enjoy!

Legend

- Senior Capstone Research
- Grant Winner of an Annual Research Conference Grant
Schedule at a Glance

Monday, April 13th*
Poster Presentations, Richmond Room
4:30 – 5:15 pm Session 1
5:30 – 6:15 pm Session 2
*Wraps, chips, fruit, veggies, and desserts will be available in the CIL Commons area on the 1st floor of LBC.

Tuesday, April 14th**
Paper & Panel Presentations, LBC 315, 316, 317, 326, 327, 328
4:30 – 5:30 pm Session A
5:45 – 6:45 pm Session B
**A Macho Nacho Bar and dessert will be located on the 3rd floor of LBC.

Wednesday, April 15th***
Paper & Panel Presentations, LBC 315, 316, 317, 326, 327, 328
1:00 – 2:20 pm Session C
***Brownies and punch will be located on the 3rd floor of LBC.

LBC is the abbreviation for the Landrum Bolling Center of Earlham College. All events will be held in LBC.
Detailed Schedule

April 13th – Poster Session 1

4:30-5:15 pm, Richmond Room

P1-01. Local Clay: Sustainability and Utility
Emma Hauser and Ruth Letson
Keywords: Regional Clays; Clay Testing; Environmental Footprint

P1-02. Criminalizing Journalism: Edward Snowden's Prosecution as a Manifestation of Lawmaking Violence Exercised by the Obama Administration
Anastasia Vladimirova ✪
Keywords: NSA Surveillance; Law; Freedom of Speech & Press

P1-03. A Workbench for Logically Definable Stringsets
Dakotah Lambert and Andrew Dai
Keywords: Logic; Natural Language

P1-04. What Is the Impact of FDI on Domestic Firm’s Productivity?
Sokhna Vor ✪
Keywords: Foreign Direct Investment; Spillover Effect; Productivity

P1-05. Design, Testing and Analysis of an Inexpensive Field Work Platform
Benjamin Yee, Kristin Muterspaw, Tara Urner, George Crowson, Sadie Coughlin-Prego, and Deeksha Srinath
Keywords: Field Science; Geocoded Data Collection; Metagenomics

P1-06. Can Policy Address the Growing Racial Inequity Crisis in American Education?
Alex Goldberg ✪
Keywords: Integration; Education Policy; School Reform
P1-07. An Ounce of Prevention Is Worth a Pound of Cure: Vaccine-Preventable Diseases in the Developed World
   Jelena Anna Juras ✪
   Keywords: Vaccine-Preventable Disease; Healthcare Systems; Non-Medical Vaccine Exemption

P1-08. Techniques for Investigating the Interaction of EGCG with Lipid Vesicles
   Claude Jean-Guillaume, Hannah R. Munro, and Cameron Van Cleave
   Keywords: Lipids; Membranes; FTIR

P1-09. Effect of Video Games on Attention
   Nasser Karmali, Lara Khalifeh, Fadee Disoke, and Nhi Dinh
   Keywords: Signal Detection Theory; Video Games; Attention

P1-10. Library Fellows Program 2015
   Aaron Falsetto and Michael Grathwohl
   Keywords: Library; Fellows

P1-11. Faster Calculations of Diffusion Constants for Lipids, Water and Proteins
   Rodoula Kyvelou-Kokkaliaris, Gwendolyn A. Claflin, and Hoang Tran
   Keywords: Molecular Dynamics; Diffusion Constants; Lipids

P1-12. An Interdisciplinary Approach to the Examination of Chinese and African Ceramics in the Earlham College Art Collection
   Ram Itani, Charlotte Page, Johnathon Hornak, Angelica DeSimio, and Thomas Abe
   Keywords: Spectrometry; Digitalize

P1-13. Water Quality Check Kit for Emergency Situations
   Andrey Gavrilov ✪
   Keywords: Water Quality; Disaster Response; Quality of Filters
April 13th – Poster Session 2

5:30- 6:15 pm, Richmond Room

P2-01. Materials Under Foot: Locally Sourced Glazes
        Nicky Sontag, Quina Weber-Shirk, and Vesta Davis
        Keywords: Sustainable Ceramics Practices; Natural Materials; Local Aesthetic

        Anastasia Vladimirova
        Keywords: New Media; Jordan; Censorship

P2-03. Italian Antisemitism: The Fascist Party, Mussolini and Italian Popular Opinion, 1922-1945
        Aaron Falsetto ♦ ☑
        Keywords: Holocaust; Italy; Fascism

P2-04. Adiponectin Impairment Disrupts Acetylcholine-Induced Aortic Relaxation after Angiotensin II-Induced Vasoconstriction: A Novel Mechanism for Hypertension Exacerbation in the Metabolic Syndrome
        Dong Ngo ♦
        Keywords: Hypertension; Adiponectin; Vasorelaxation

P2-05. Seisme: An Affordable Seismograph
        George Crowson and Andrey Gavrilov ☑
        Keywords: Seismograph; Arduino; Computer Science

P2-06. Molecular Dynamic Studies of Z[WC] DNA and the B to Z DNA Transition
        Ashutosh Rai, Jinhee Kim, and Benjamin Yee
        Keywords: Biophysics; DNA; Computational Physics

P2-07. You Can't Sit With Us
        Helena Flores ♦
        Keywords: Exclusion; Mood
P2-08. Benefits of Implementing Consensus in Education
Katherine Sorrows
Keywords: Consensus; Education

P2-09. Creativity and Sensory Stimulation
Maria Mercado
Keywords: Creativity; Sustainable Ceramics; Sensory Stimulation

P2-10. Crime and Punishment
Megan Huffmeyer
Keywords: Mental Illness; Perception; Gender

P2-11. Attitudes toward Native Americans
Allison Sturm
Keywords: Native Americans; Alcoholism; Stereotyping

P2-12. Geoarchaeology and the Basketmaker Communities Project
Clarice Perryman and Emma Hauser
Keywords: Geology; Geoarchaeology; Soils

P2-13. Phosphate Remediation Using Local Waste Water Treatment Plants in the Whitewater River in Richmond, IN
Cameron Van Cleave and Andrew S. Hood
Keywords: Phosphate; Eutrophication; Remediation

P2-14. The Role of Praise in Fixed & Growth Mindset
Lara Khalifeh and Fadee Disoke
Keywords: Praise; Mindset; Persistence
April 14th – Paper & Panel Presentations Session A

4:30 – 5:45 pm

A1. LBC 315

Panel Presentation –

Mao in the Land of Zapata: A Socialist Commune in the Midst of the Mexican Dirty War

We present an analysis of the 1973 Maoist commune, La Colonia Rubén Jaramillo in Morelos, Mexico. We will discuss agrarian movements in the 60s and 70s, the factors that allowed the commune to identify as Maoist, and the remembrance and legacy this socialist effort left in Mexican history.

Keywords: Maoism; Agrarian Movements; Mexican Dirty War

Contextualizing La Colonia Rubén Jaramillo: The Socio-Political and Economic Climate Surrounding the Maoist Commune in Temixco
Ana Leticia De Leon

Retrofitting Mao in Mexican Agrarian Tradition
Sierra Newby-Smith

Co-optation and Control: Political Integration and Repression of the Colonia Rubén Jaramillo
Quina Weber-Shirk

"El Güero" Medrano in Contemporary Scholarship Concerning the Colonia Rubén Jaramillo
Sadie Rehm
A2. LBC 316

Panel Presentation –

Literature and the Self: Part I
Moderator: Scott Hess

This is Part I of a two-part panel on the topic of Literature and the Self. The papers will explore different ways in which the self is constructed in literature, drawing on interdisciplinary approaches that include not only literary studies but also fields such as cultural studies, women’s studies, philosophy, psychology, sociology, and anthropology. We will explore how the “self” is not just a convenient abstraction that lumps together different aspects of personal identity, but an organizing principle of agency and self-understanding that helps to construct individuals’ places in society and shape the possibilities of their actions and self-awareness. The two panels will investigate how various literary forms not only reflect but also actively shape versions of self, in complex dialogue with cultural and historical contexts and versions of social identity and power.

Keywords: Literature; Self

Scott Hess with Lindsay Friday, Eleanor Hinkle, and Mireille Recchia
A3. LBC 317

A3a. Successful Model for Microfinance Program in Women Empowerment
   Betelihem Alemu ✿
   Keywords: Microfinance

A3b. Pupil Dilation in Response to Impression Formation
   Zoe Wolfe ✿
   Keywords: Impression Formation; Attitude; Pupilometry

A3c. Syncytin Symbiosis and Integration with the Human Genome
   Samuel Weitekamp ✿
   Keywords: Endogenous Retroviruses; Virology; Symbiosis

A3d. An Examination of Leaf Retention and Herbivory Rates in Invasive and Native Shrubs in an East-Central Indiana Forest Fragment
   Caitlin Clark, Ashley Hedrick, Kasun Bodawatta, and Andrew S. Hood
   Keywords: Invasive shrubs; Conservation; Plant Physiology
A4. LBC 327

A4a. Fabrication of Authenticity: Why Afro-Brazilian Samba Became Brazilian Samba  
    Chisama Ku Penn  
    Keywords: Race Relations; Latin America; Culture

A4b. Highlighting the Convergent Plight of African Americans and Tibetans: The Struggle To Regain Identity Amidst Cultural Loss  
    Asia Mapp  
    Keywords: Culture; Migration; Identity

A4c. Democracy and Work: The Co-Operative Movement and Societal Reproduction  
    Joshua Reaves  
    Keywords: Co-Operative; Work; Structures of Violence

A4d. Food Deserts in Richmond: An Ethnographic Study  
    Emma Jenkins-Sullivan ✪  
    Keywords: Food Desert; Transportation; Supermarkets
April 14th – Paper & Panel Presentations Session B

5:45 – 6:45 pm

B1. LBC 315

B1a. Lack of Internal Elite Dissent Sustains the Chinese Communist Regime
   Mikel Qafa
   Keywords: Elite Dissent; Chinese Communist Party; Pluralism

B1b. Anti-War Student Movements in the United States: A Comparison between Vietnam and the Gulf War
   Tieyi Zhang ✓
   Keywords: Student Activism; Vietnam War Era; Gulf War Era

B1c. Them That's Got Are Them That Gets: Cultural Reproduction at the City Art Museum
   Cecelia Capanna ✽
   Keywords: Cultural Reproduction; Cultural Capital; Art Museum

B1d. Deep Performance at a Living History Museum
   Adrian Estrada ✽
   Keywords: Deep Play; Symbolic Capital; Living History
B2. LBC 316

Panel Presentation –

**Literature and the Self: Part II**  
Moderator: Scott Hess

This is Part II of a two-part panel on the topic of Literature and the Self. The papers will explore different ways in which the self is constructed in literature, drawing on interdisciplinary approaches that include not only literary studies but also fields such as cultural studies, women’s studies, philosophy, psychology, sociology, and anthropology. We will explore how the “self” is not just a convenient abstraction that lumps together different aspects of personal identity, but an organizing principle of agency and self-understanding that helps to construct individuals’ places in society and shape the possibilities of their actions and self-awareness. The two panels will investigate how various literary forms not only reflect but also actively shape versions of self, in complex dialogue with cultural and historical contexts and versions of social identity and power.

**Keywords:** Literature; Self

Scott Hess with Lena Morrow, Nathan Taylor, and Teonna Taylor
Panel Presentation –

Interpretations of Martin Heidegger's Being and Time
Moderator: Kevin Miles

Keywords: Philosophy; Being & Time; Phenomenology

The Being and Meaning in Heidegger's Being and Time
Daniel Gonzalez ✽

Trying to Understand the First Two Chapters of Sein und Zeit
Samuel Weitekamp

Dasein and Discourse
Tara Urner
Panel Presentation –

**Issues in Transition from High-School to College**
Moderator: Pelle Tracey

Our group did research on the comparison between high school and college interpretation of preparedness. In this study, preparedness entails the following: academic proficiency (core Math, English, and Critical thinking), technological capabilities, individual traits and characteristics, and quality of education received at the high school level.

**Keywords:** Transition; Preparedness; Education

Soe Yu Naing, Hao Nguyen, Cynthia Tanzer, and Ariona Anderson
April 15th – Paper & Panel Presentations Session C

1:00 – 2:20 pm

1. LBC 315

C1a. Hope
   Derek Gerard Brennan ✽
   Keywords: Hope; Addiction; Homelessness

C1b. The Effects of Gratitude on Guilt Reduction
   Annie Foley ✽
   Keywords: Gratitude; Guilt; Positive Psychology

C1c. Sustainable Ceramics: Sustaining the Artist
   Deryk Bauer-Lee
   Keywords: Ceramics; Creative Sustainability; Well-Being

C1d. A Couch Potato Sack Race: Motivating the Unmotivated
   Joshua Ray Graetz ✽
   Keywords: Self-Determination Theory; Coaching Style; Motivation

C1e. I Speak Therefore I Am: How Language Makes Reasoning Possible
   Colin Ulin ✽
   Keywords: Language; Psycholinguistics; Reasoning
C2. LBC 315

C2a. The Use of English in Introductory Language Classes
    Max Raskin and Hope Safford
    Keywords: Teaching; Immersion; L1/L2

    Ann Wright
    Keywords: Poetry; Feminism; French; ASL

C2c. Spanglish Speaking
    Adrian Estrada
    Keywords: Spanglish; Ethnographic Case Study

C2d. Space, Time, and Modernity in One Hundred Years of Solitude
    Sadie Rehm
    Keywords: Modernity

C2e. Fatalism as a Strategy of Social Commentary in the Work of Gabriel García Márquez
    Tyler Gibson
    Keywords: Literature; Spanish
C3. LBC 317

Panel Presentation –

**Nature and Identity in Romantic Landscape Painting**
Moderator: Scott Hess

In this panel, three students will present papers on their main research project for a Ford/Knight collaborative project in the current semester, on the topic of “Nature and Identity in Romantic Landscape Painting.”

**Keywords:** Landscape Painting; Nature; Identity

Religion in the Romantic Landscape
Hope Steiner

Landscape and Frontier Mythology
Michael Grathwohl

Frederic Church and Exotic Landscapes
Gabriel Penk
Panel Presentation –

Library of Congress Research Trip 2014
Moderator: Amy Bryant

Students and faculty spent two weeks at the Library of Congress researching the relationship between cultural and economic values in the struggle over sexual freedom and conservative resurgence in the 1970s. Each researcher chose a more specific topic, which contributes to a fuller picture of the political and social values landscape.

Keywords: Sexuality; Conservatism; Morality

Protestant Responses to Homosexuality in the 1970s and 1980s
Sarah Medlin

The Capital of the Prison Industrial Complex
Allison Eykholt

Sex Education: Curriculum and Controversy in the 1960's and 1970's
Mollie Goldblum
Abstracts
(Listed alphabetically by last name of the first author)

Betelihem Alemu
Successful Model for Microfinance Program in Women Empowerment
Faculty Advisor: Monteze Snyder

Microfinance is the extraordinary product of Mohammed Yunus work. This research focuses on microfinance programs working on women empowerment in developing countries. Microfinance has been used as an effective institutional mechanisms to promote socioeconomic development of the economically weaker sections of the society especially women. Women empowerment is defined as the capacity of women in reducing the socio-economic vulnerability and dependency on male household members, improving their involvement in household decision makings.

The research argues that a successful model for microfinance must include both the organizational factors and the socio-cultural context to empower their women beneficiaries.

This study evaluates the work of existing microfinance institutions programs which are operating in regions including East and Southern Africa, South Asia and South America. Through their work the research evaluates the importance of connecting both organizational-factors and socio-cultural context to create a successful model.

The research addresses the organization factors including reason for loans based on characteristics of the eligible beneficiaries, cost of lending, design and implementation of training, size of loans and individual/group loans and repayment period. It also addresses; socio-cultural factors including household decision making/control and access to resources, domestic violence and marital conflicts, household growth and economical security, legal and political awareness, access to education, mobility of beneficiaries prior and post of empowerment programs. It concludes that though microfinance has been able to make a significant difference in the empowerment of their beneficiaries, there have also been multiple proofs that it has not made the lives of beneficiaries any better than expected.

Keywords: Microfinance
Tuesday at 4:30 pm in LBC 317

Deryk Bauer-Lee
Sustainable Ceramics: Sustaining the Artist
Faculty Advisor: Judy Wojick

My presentation for the Ford/Knight: Sustainable Ceramics will be looking at what sustainability for those involved in ceramics means or entails and why it is important. I
will be looking at the positive outcomes that ceramics can have on people with regard to reducing stress, increasing creativity, benefits to engaging in flow, and building new neurons. I will be drawing on research by Judy Wojcik-Ceramics, Beth Mechlin-Psych/Neuroscience, and Lyn Miller-Religion/Contemplative education. The purpose is to (a) present the effects on reducing stress and the positive impacts that has on mental health, (b) present viable and applicable actions we can implement at Earlham that make use of existing research about sustaining focus and flow. My hope is that by building on faculty research on stress, mindfulness and contemplative pedagogy this project can tie together strands of each of the aforementioned research in hopes of adding to our body of knowledge that supports ongoing Earlham Contemplative educational studies research. Findings will add to possibilities of what can be done for studentâ€™s faculty, staff, and administrators here at Earlham that will help with the stressful lifestyle a rigorous Earlham schedule demands. Additional topics include spiritual wellbeing, pedagogy, being present, and faith.

*Keywords: Ceramics; Creative Sustainability; Well-Being*

**Wednesday at 1:00 pm in LBC 315**

**Derek Gerard Brennan ⚪**

Hope  
Faculty Advisor: JoAnn Martin

This paper draws on my ethnographic study of Hope House in Richmond, Indiana, a residential addiction rehabilitation facility as well as a nightly refuge for Richmond’s homeless population. In this paper, I analyze the paradoxes associated with discourses of hope in the context of lives limited by structural unemployment, drug abuse, and lack of education. The question I address in this paper is how hope endures constraints such as these, what role hope plays in people’s daily lives, what mechanisms are used in this setting to reinforce hope, and how hope shapes social relations within Hope House.

*Keywords: Hope; Addiction; Homelessness*

**Wednesday at 1:00 pm in LBC 315**

**Cecelia Capanna ⚪**

Them That’s Got Are Them That Gets: Cultural Reproduction at the City Art Museum  
Faculty Advisor: Michael R. Jackson

This presentation focuses on the way museums engage in the process of cultural reproduction, focusing specifically on the City Art Museum, a large museum in a major mid-Atlantic city. The research found tension between the ideal mission of the museum to be completely accessible, and the reality of its limited the accessibility to the public. The museum aspires to serve the diverse population of the city, and to expose all citizens to culture in the form of access to art. However, the museum is actually fully accessible only to those possessing a certain amount of preexisting cultural, social and economic capital. The difference in accessibility contributes to cultural reproduction as defined by Bourdieu, reinforcing the social division between those with and without cultural capital. This
process manifests in regards to the type of information available to individuals, the explicitly stated target demographics for marketing, and the contradictory definitions of “access” in different Museum departments. The implementation of programs intended to bring more people with little or no cultural or economic capital to the museum might be used to address the cycle of cultural reproduction, as well as supporting pre-existing programs with this same goal.

*Keywords: Cultural Reproduction; Cultural Capital; Art Museum*

**Tuesday at 5:45 pm in LBC 315**

**Caitlin Clark, Ashley Hedrick, Kasun Bodawatta, and Andrew Hood**

An Examination of Leaf Retention and Herbivory Rates in Invasive and Native Shrubs in an East-Central Indiana Forest Fragment

**Faculty Advisor: Brent Smith**

Exotic species that develop into invasive species can have a strong impact on the success of native species. There are multiple traits of invasive species that result in them being better competitors against native species. This study investigates two such traits: whether herbivory and leaf retention differ between invasive and native shrub species. We hypothesize that native shrub species will have higher leaf herbivory compared to invasive shrubs. Secondly, we hypothesize that invasive species will have longer leaf retention rates compared to native shrub species, which will increase the photosynthetic period of invasive species. We conducted our study in a disturbed forest habitat in Wildman Woods near Richmond, Indiana. Herbivory data were gathered through collecting 20 leaves from 20 individuals of 5 native shrub species and 5 invasive shrub species. Total herbivory was measured by calculating the proportion of herbivorized leaf area in herbivorized leaves. The leaf retention data were collected by following 10 specific leaves of the same branch on 20 individuals from each of 10 species of shrubs from September 25th to November 13th, 2014. We found that overall native species have significantly greater herbivory rates than invasive species. Leaf color change in native species happened significantly earlier in fall compared to invasive species and leaf drop is slower in invasive species compared to native species. Our result suggests that both low herbivory rates and high leaf retention make invasive shrub species better competitors than native species through increased photosynthetic production.

*Keywords: Invasive shrubs; Conservation; Plant Physiology*

**Tuesday at 4:30 pm in LBC 317**

**George Crowson and Andrey Gavrilov**

Seisme: An Affordable Seismograph

**Faculty Advisor: Charlie Peck**

Andrey Gavrilov and George Crowson developed a seismograph called Seisme. We wanted to create an affordable seismograph that can significantly increase the global coverage of seismic data. With this new data geologists can approximate the frequency and intensity of future earthquakes. If necessary new policies can be enacted to strengthen the
infrastructure of a given region. These new policies would reduce the amount of damage and number of deaths caused by earthquakes. We used Arduino to interface with a 3-axis accelerometer and a piezo element. All products and resources used in this project are available at wiki.cs.earlham.edu under the name Seisme.

Keywords: Seismograph; Arduino; Computer Science

Monday at 5:15 pm in the Richmond Room

Ana Leticia De Leon
Contextualizing La Colonia Rubén Jaramillo: The Socio-Political and Economic Climate Surrounding the Maoist Commune in Temixco
Faculty Advisor: Nydia Martinez
Moderator: Nydia Martinez

I discuss how the legacy of the Mexican Revolution, the new consciousness arising from the global sixties and the influence from students and agrarian movements shaped the vision of La Colonia Rubén Jaramillo.

Tuesday at 4:30 pm in LBC 315 as part of the Group Panel:

Mao in the Land of Zapata: A Socialist Commune in the Midst of the Mexican Dirty War

Panel Abstract: We present an analysis of the 1973 Maoist commune, La Colonia Rubén Jaramillo in Morelos, Mexico. We will discuss agrarian movements in the 60s and 70s, the factors that allowed the commune to identify as Maoist, and the remembrance and legacy this socialist effort left in Mexican history.

Keywords: Maoism; Agrarian Movements; Mexican Dirty War

Adrian Estrada ∘
Deep Performance at a Living History Museum
Faculty Advisor: Joann Martin

The basis of this project was to observe performers (interpreters) working at a living history museum while assuming the role as a performer as well. This study, once conducted, allowed for an analysis to be drawn from Geertz's coined term of “deep play.” Geertz’s term of “deep play” suggests that relationships within an external structure actually mirrors and reflects interpersonal relationships. I address this “deep play” as “deep performance” in reference to the nature in which the workers at this establishment embody their roles. I also address the expectations that stem from an arena such as the one of a living history museum.

This study highlights the extent to which people act, both within and outside a set construct in order to achieve status. My observations revealed that status permeates and plagues the performer’s existence in and out of character, which I interpreted as “symbolic capital.”
Adrian Estrada ✶
Spanglish Speaking
Faculty Advisor: Berta Chopite

The basis of this project was to analyze the extent of the effect of Spanglish on Native Spanish Speakers attending Earlham College. The students that were studied were chosen based on their international status which then corresponded to the effect of them returning to their home country at the end of the school year. This study was performed as an ethnographic case study in which five international students were interviewed and their speech analyzed based on linguistic characteristics inherent in Spanglish, i.e. code switching, straight phonetic translation, English syntax, loan words made into “Spanish,” and adding “ear” to English words.

Through the analysis of this data I was able to address and discuss certain “Spanglish” traits with the participants that arose during their interviews.

Allison Eykholt
The Capital of the Prison Industrial Complex
Faculty Advisor: Amy Bryant, Ryan Murphy
Moderator: Amy Bryant

I entered my research wanting to know what precedent set mass incarceration. Because of my background in Women’s, Gender and Sexuality studies, I was interested in the current prison-industrial system’s intersection with class, race, gender and sexuality. After conducting some initial research on deinstitutionalization in the mid-20th century, I also wondered if there was any connection between people deemed mentally ill who had previously been virtually “locked up” in mental institutions and the influx of incarceration post-deinstitutionalization.

While consulting a variety of sources I found that a common linkage between identities within the prison-industrial complex is the motive for profit. Specifically heightened by the War on Drugs, criminalizing and incarcerating Black peoples instead of white people revealed the racist motives behind what would later be called mass incarceration. The article “What Makes Criminals? Not Genes” confirmed my questions of “morality” behind criminalization. In this article, criminals were described as often being gay, being Black, being mentally ill and being male. Looking at statistics of prison populations around the time the article was published, it is overwhelmingly Black, male, poor and full of people who have mental illnesses.
Wednesday at 1:00 pm in LBC 327 as part of the Group Panel:

Library of Congress Research Trip 2014

Panel Abstract: Students and faculty spent two weeks at the Library of Congress researching the relationship between cultural and economic values in the struggle over sexual freedom and conservative resurgence in the 1970s. Each researcher chose a more specific topic which contributes to a fuller picture of the political and social values landscape.

Keywords: Sexuality; Conservatism; Morality

Aaron Falsetto and Michael Grathwohl
Library Fellows Program 2015
Faculty Advisor: Amy Bryant

The Library Fellows Program provides two students with the opportunity to gain experience in the library science workplace through a combination of experiential immersion, job shadowing and career discernment. Students become involved in the daily functions of a library and learn the ways in which librarians facilitate a comfortable and efficient workplace for students and faculty.

We will present on our collective experience as library fellows, commenting on various work projects and collaboration with librarians in Lily Library with a focus on professional development, articulating the ways in which Earlham Libraries support campus academics, and exploring the state of academic libraries more broadly. We will also comment more personally on the rewards and challenges of librarianship in academia following our experiences and research over a fifteen week period.

Keywords: Library; Fellows

Monday at 4:30 pm in the Richmond Room

Aaron Falsetto ✪
Italian Antisemitism: The Fascist Party, Mussolini and Italian Popular Opinion, 1922-1945
Faculty Advisor: Helena Kaler

The Holocaust claimed the lives of approximately six million Jews. However, Jews were persecuted dissimilarly in different nations. The Nazi regime in Germany instilled hatred for its Jewish population, and held a resilient desire to annihilate European Jewry. Yet, not all regimes in Europe held the same desire to massacre its Jewish population. Countries such as Denmark, Bulgaria and Finland were successful in protecting their Jewish population throughout the Second World War. Interestingly, Italy, Germany’s strongest ally during the years of Jewish persecution around Europe, managed to save approximately eighty-five percent of its Jewish population. Italy ranks as the nation with the third highest Jewish survival rate in Europe only behind Denmark and Bulgaria. Hence, it is critical to
examine the degree in which Mussolini, the Fascist Party and the Italian population actively supported, ignored or resisted pressures to persecute Jews. This presentation will suggest that the role of anti-Semitism and the persecution of Jews in Italy were largely ignored by the Italian population during the Holocaust.

*Keywords: Holocaust; Italy; Fascism*

**Monday at 5:15 pm in the Richmond Room**

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**Helena Flores ○**  
**You Can’t Sit With Us**  
**Faculty Advisor: Rachael Reavis**

Much research finds negative effects and feelings of an excluded victim; however research has yet to determine whether witnessing exclusion or partaking in that exclusion has psychological costs. Earlham College students participated in an experiment investigating the effects of exclusion on mood. The 61 participants were randomly assigned to one of three groups (excluder, excluded, or witness to exclusion) and asked to record a memory prompt asking about a time they were excluded, excluded someone, or witnessed an exclusion followed by a mood scale. Results indicated that the excluder felt significantly more feelings of shame and guilt than the witness to exclusion and the excluded. There were no significant differences in positive mood and in negative mood and no significant differences for gender, age, or race. We can use this research and future research to combine efforts in academic settings, hopefully finding a solution or prevention plan for people of all ages.

*Keywords: Exclusion; Mood*

**Monday at 5:15 pm in the Richmond Room**

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**Annie Foley ○**  
**The Effects of Gratitude on Guilt Reduction**  
**Faculty Advisor: Rachael Reavis**

The immediate effects of gratitude expression on guilt reduction was measured in order to investigate whether or not this intervention, used in positive psychology, played a role in the alleviation of guilt. The effect of neuroticism on guilt and guilt reduction was also examined. All participants were given a neuroticism survey, asked to recall a memory in which they did not live up to a moral obligation, and take a guilt measure. Next, participants were randomly assigned into either the gratitude condition or the control condition. Then, all participants took the guilt measure again. Results indicated that participants in the gratitude condition experienced less post-intervention guilt than those in the control condition. These results confirm that gratitude plays a role in reducing guilt, adding to the growing literature on positive psychology. This suggests that there is a quick intervention for managing negative emotions such as guilt. A follow-up study is examining the immediate effects of gratitude and signature strength expression on shame reduction.

*Keywords: Gratitude; Guilt; Positive Psychology*

**Wednesday at 1:00 pm in LBC 315**
Andrey Gavrilov ✪
Water Quality Check Kit for Emergency Situations
Faculty Advisor: Charles Peck

Water is a scarce resource and the dearth of effective tools to convert other types of liquid into fresh water makes us even more vulnerable to risks caused from this scarcity. The situation becomes critical after disasters strike and there is no planned way to provide emergency aid to the victims and take them out of the situation immediately, that is why we send them tools that could help them survive. In this survival kit, one of the most important components would be a mechanism via which they can extract water from the surroundings. Filters are very useful and they serve very well, but sometimes they tend to defect and not work according to the specifications provided by the manufacturer. In my research, I developed a device that is able to detect whether the filter is working properly. Such devices do exist, but they cost in thousands of dollars, whereas the device that I developed would cost less than $200.

Keywords: Water Quality; Disaster Response; Quality of Filters

Monday at 4:30 pm in the Richmond Room

Tyler Gibson ✪
Fatalism as a Strategy of Social Commentary in the Work of Gabriel García Márquez
Faculty Advisor: Rodolfo Guzman

Fatalism is a predominant theme in the writing of Gabriel García Márquez, especially in three of his novels: One Hundred Years of Solitude (1967), The General in his Labyrinth (1989), and Chronicle of a Death Foretold (1981). This almost ubiquitous theme plays a different role in each of these three novels. In The General in his Labyrinth, it contributes to a political commentary. In Chronicle of a Death Foretold, it supports a cultural critique. In One Hundred Years of Solitude the theme reaches its synthesis and is involved in the construction of commentaries on politics, society, mythology, and metafiction. In all these novels García Márquez utilizes fatalism to construct different social commentaries. The present work addresses the function of fatalism in the writing of García Márquez and the reasons for his extensive use of this theme.

Keywords: Literature; Spanish

Wednesday at 1:00 pm in the Richmond Room

Alex Goldberg ✪
Can Policy Address the Growing Racial Inequity Crisis in American Education?
Faculty Advisor: Jennifer Seely

Can education policy be an effective method of reforming American schools to reduce racial inequity, or should we be looking to solutions outside of the sphere of education policy or policy altogether? By assessing the arguments of two schools regarding this issue, one that supports that education policy can effectively reduce racial inequity in schools and one that is more pessimistic about the effectiveness of education policy. In addition to this I intend
to conduct case studies of educational policy implemented in two different American cities, New York, and Louisville. I will do this by analyzing data to assess the relationship or lack thereof between policy change, and a indicators such as graduation rates, dropout rates, school closings, and levels of school segregation, all of which I believe indicate levels of broader inequity in the schools themselves. I hypothesize that policy can in fact have a successful impact on the level of racial inequity in schools despite the checkered history of major policy initiatives that have been attempted in the past, and that these policies failed because of poor design and implementation rather than because there was no possibility of success to begin with as a result of external factors.

**Keywords:** Integration; Education Policy; School Reform

**Monday at 4:30 pm in the Richmond Room**

Mollie Goldblum

*Sex Education: Curriculum and Controversy in the 1960's and 1970's*

**Faculty Advisor:** Amy Bryant, Ryan Murphy

**Moderator:** Amy Bryant

Education is a topic that has been marked by controversy and opposition in most situations in which it has arisen through American history and which often caught in the crossfire of a variety of social and political agendas. I was hoping to find more on how the changing ideas of “conservatism” and “liberalism” effected sex education. I believe this is important for the sake of understanding how American sex education has developed into what it is today, as well as a lens through which to examine how attitudes towards issues including but not limited to religion, family, class, race and nationalism changed during this time period. While there were changes to Sex Education curriculums (or lack there of) across the country in many places between the 60s and 70s, those changes varied depending on the locations and this is just one of many variables to be considered. I chose to keep my research broad in terms of place, although as I continue I may focus more on one or a few cases as examples of larger trends.

**Wednesday at 1:00 pm in LBC 327 as part of the Group Panel:**

**Library of Congress Research Trip 2014**

**Panel Abstract:** Students and faculty spent two weeks at the Library of Congress researching the relationship between cultural and economic values in the struggle over sexual freedom and conservative resurgence in the 1970s. Each researcher chose a more specific topic which contributes to a fuller picture of the political and social values landscape.

**Keywords:** Sexuality; Conservatism; Morality
Daniel Gonzalez  ◆
The Being and Meaning in Heidegger’s Being and Time
Faculty Advisor: Kevin Miles; Ferit Guven
Moderator: Kevin Miles

In regards to Being and Time, I attend to two primary concerns: Namely, I provide a rebuttal against pragmatist readings of Being and Time and secondly, said rebuttal hinges upon my interpretation of the role of “being” in Heidegger’s text. I contend that Heidegger’s being is best interpreted in terms of meaningfulness as the framework by which objects are disclosed as meaningful for Dasein. By keeping the question of meaning in view, I read Being and Time in such a way that resists the dismissiveness of pragmatic readings of Being and Time towards the question of being. By restating the question of being in terms of meaning is a gesture that rejects the pragmatic interpretation of the meaning of being. Ultimately my interpretation prioritizes the question of being in order to modify how we might evaluate Being and Time’s initial objective of retrieving the mythic origins of western thought.

Tuesday at 5:45 pm in LBC 317 as part of the Group Panel:

Interpretations of Martin Heidegger’s Being and Time

Keywords: Philosophy; Being & Time; Phenomenology

Joshua Ray Graetz  ◆
A Couch Potato Sack Race: Motivating the Unmotivated
Faculty Advisor: Kathy Milar

Previous research in Self Determination Theory has questioned the preferences athletes have for coaching style. When given the choice between an intimidating, “controlling” coach, or a positive, “autonomy-supportive” coach, athletes have been found to prefer, and benefit more from an autonomy-supportive coach. But what about non-athletes? This study examines preferences as a function of athletic experience. Participants’ preferences for coaching style were recorded and then participants were asked to perform a potato sack race, half being motivated in a controlling way, half being motivated in an autonomy-supportive way. Regardless of athletic experience, all participants preferred the autonomy-supportive coaching style. Additionally, across all levels of athletic experience, participants in the controlling coach group performed the potato sack race faster. This demonstrates the strength of the controlling coaching style. Due to the short nature of the physical activity, all participants were able to benefit from his aggressive commands.

Keywords: Self-Determination Theory; Coaching Style; Motivation

Wednesday at 1:00 pm in LBC 315
Michael Grathwohl  
Landscape and Frontier Mythology  
Faculty Advisor: Scott Hess  
Moderator: Scott Hess

Well over a century after the official closure of the frontier, the concept continues to lead a vigorous and complex existence on the level of imagination. The frontier has come to signify both virtuous small-scale farming on the plains and the idealized advance of industrial civilization, and this heterogeneous, mythologized image of the frontier has come to undergird America’s understanding of its own identity. This project will analyze nineteenth-century landscape paintings of the American frontier as an important component of the sociocultural construction of the frontier as a simultaneously agrarian and industrial space that persists today, focusing on the presence of both transcontinental railroads and yeoman farmers in the paintings of artists such as Asher Durand and John Gast. Landscape painting often serves to artificially unify its subject matter, and the contradictory union of railroad industry and small-scale agriculture in many paintings of the mid nineteenth century reflects the contemporary perception of the frontier as the ultimate catalyst of both capitalism and democracy.

Wednesday at 1:00 pm in LBC 317 as part of the Group Panel:

Nature and Identity in Romantic Landscape Painting

Panel Abstract: In this panel, three students will present papers on the their main research project for a Ford/Knight collaborative project in the current semester, on the topic of “Nature and Identity in Romantic Landscape Painting.”

Keywords: Landscape Painting; Nature; Identity

Emma Hauser and Ruth Letson  
Local Clay: Sustainability and Utility  
Faculty Advisor: Judy Wojcik

We plan to research the accessibility of local clays as an alternative to commercial clays for individual ceramicists as part of a Ford/Knight project. Sourcing clays locally would provide potters and consumers with a greater connection to and appreciation for the resources they use each day while reducing their environmental impact. To test our local clays for their ceramics utility, we will first source and dig the clays available in the Richmond area which can be located using geologic maps. Once we process the clay, we can test for plasticity, firing temperature, and shrinkage with and without alteration of the clay body. Samples have been collected from Earlham College’s back campus, Noblesville, IN, and Brookville, IN.

Ultimately, we will create a test tile reference set displaying Indiana clay next to our studio’s commercial clay. We also plan to map the locations of clay sources and perform mineralogical analyses on collected clays in Earlham’s geochemical lab. The maps in
conjunction with the mineralogical analyses may act as a guide for students who want to source their own local materials in the future. Finally, we hope to process enough local clay to make some of our own functional or sculptural artwork.

*Keywords: Regional Clays; Clay Testing; Environmental Footprint*

**Monday at 4:30 pm in the Richmond Room**

**Scott Hess with Lindsay Friday, Eleanor Hinkle, and Mireille Recchia**
**Faculty Advisor: Scott Hess**
**Moderator: Scott Hess**

**Tuesday at 4:30 pm in LBC 316 as part of the Group Panel:**

**Literature and the Self: Part I**

Panel Abstract: This is Part I of a two-part panel on the topic of *Literature and the Self*. The papers will explore different ways in which the self is constructed in literature, drawing on interdisciplinary approaches that include not only literary studies but also fields such as cultural studies, women’s studies, philosophy, psychology, sociology, and anthropology. We will explore how the “self” is not just a convenient abstraction that lumps together different aspects of personal identity, but an organizing principle of agency and self-understanding that helps to construct individuals’ places in society and shape the possibilities of their actions and self-awareness. The two panels will investigate how various literary forms not only reflect but also actively shape versions of self, in complex dialogue with cultural and historical contexts and versions of social identity and power.

*Keywords: Literature; Self*

**Scott Hess with Lena Morrow, Nathan Taylor, and Teonna Taylor**
**Faculty Advisor: Scott Hess**
**Moderator: Scott Hess**

**Tuesday at 5:45 pm in LBC 316 as part of the Group Panel:**

**Literature and the Self: Part II**

Panel Abstract: This is Part II of a two-part panel on the topic of *Literature and the Self*. The papers will explore different ways in which the self is constructed in literature, drawing on interdisciplinary approaches that include not only literary studies but also fields such as cultural studies, women’s studies, philosophy, psychology, sociology, and anthropology. We will explore how the “self” is not just a convenient abstraction that lumps together different aspects of personal identity, but an organizing principle of agency and self-understanding that helps to construct individuals’ places in society and shape the possibilities of their actions and self-awareness. The two panels will investigate how various literary forms not only
reflect but also actively shape versions of self, in complex dialogue with cultural and historical contexts and versions of social identity and power.

*Keywords: Literature; Self*

**Megan Huffmeyer**
**Crime and Punishment**
**Faculty Advisor: Rachael Reavis**

The purpose of this study was to look at perceptions of mental illnesses based on a crime. Fear, Lack of Sympathy, and Stigma were measured in this study after participants read a newspaper article about a character named Sam who committed a crime. The undergraduate psychology students read about Sam as a female or male who was either diagnosed with schizophrenia or depression. A new sample of participants from MTurk were added in order to compare perceptions of mentally ill to a condition where no mental illness was diagnosed. Participants reported more fear in the control condition compared to schizophrenia and depression. Female participants reported having more fear of Sam, but also reported having more sympathy for Sam. Participants who were exposed to a violent character with schizophrenia were more likely to say that they’d be willing to live next to the mentally ill in general. Looking at these results, there are clear gender differences when it comes towards lack of sympathy. This could be due to education, which needs to be presented equally across the population.

*Keywords: Mental Illness; Perception; Gender*

**Monday at 5:15 pm in the Richmond Room**

**Ram Itani, Charlotte Page, Johnathon Hornak, Angelica DeSimio, and Thomas Abe**
**An Interdisciplinary Approach to the Examination of Chinese and African Ceramics in the Earlham College Art Collection**
**Faculty Advisor: Corinne Deibel, Mike Deibel, & Julie May**

In this interdisciplinary study, Chemistry and Art faculty and students collaborated to analyze, characterize and digitize artifacts from the Earlham College Art Collection. The goal of this project was to better characterize the uses and limitations of handheld spectrometers to obtain chemical information about art objects that can only be analyzed within our Art Collection. A total of 106 Chinese and African ceramic objects were analyzed by handheld INNOV-X alpha 6500 X-Ray Fluorescence spectrometer (hh-XRF) and by Diffuse Reflectance Infra-Red Spectroscopy (DRIFT) using a handheld 4100 Agilent ExoScan Series FTIR analyzer. Principal component analysis (PCA) was performed on all unglazed specimens using the log-scaled concentrations for Zr, Rb, Sr, Ti, Fe and Mn, and was able to differentiate the African objects from the Chinese objects. In the African group (56 objects), PCA using Zr, Fe, Rb and Sr showed six distinct clusters. In the Chinese group (50 objects), PCA using Zr, Rb and Sr also showed six distinct clusters that correlated well with the different time periods. From the Chinese glazed specimens, we were able to identify two distinct types of glazes: one heavy in Ca and one heavy in Pb. The Pb glaze on the Han Dynasty model stove matched that of a vase of uncertain origin, which reclassified
the vessel’s place of origin. DRIFT analyses were used to estimate the firing temperature of the ceramics objects. The SiO-stretching bands indicated that the West African objects were fired at lower temperatures (500 to 600°C) than the Chinese objects (600 to 900°C).

Keywords: Spectrometry; Digitalize

Monday at 4:30 pm in the Richmond Room

Claude Jean-Guillaume, Hannah R. Munro, and Cameron Van Cleave
Techniques for Investigating the Interaction of EGCG with Lipid Vesicles
Faculty Advisor: Kalani Seu

Lipids are a major component of cell membranes and the chemical and physical properties of lipids, as well as their role in many cellular processes, are not completely understood. 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 shown promise as a therapeutic for HIV, cancer, and many other disorders. EGCG has also recently been shown to disrupt the integrity of lipid membrane vesicles; the mechanism and details of the interaction between EGCG and lipid membrane vesicles is still unclear. Recent research by our group has shown that lipid membrane composition can alter EGCG induced leakage. We suspect that membrane charge, viscosity, and rigidity play an important role in this process. Though we have some fluorescence assay evidence that supports this claim, we do not have direct chemical evidence of this interaction; in particular, spectroscopic evidence (e.g. FTIR). Here we present the initial steps in our attempt to find direct chemical evidence of EGCG-lipid interactions.

Keywords: Lipids; Membranes; FTIR

Monday at 4:30 pm in the Richmond Room

Emma Jenkins-Sullivan ○
Food Deserts in Richmond: An Ethnographic Study
Faculty Advisor: JoAnn Martin

This paper draws on my ethnographic study of a neighborhood in Richmond, Indiana that has been identified as a “food desert” by the United States Department of Agriculture (USDA). The USDA and many social scientists have defined the term food desert as a setting in either a rural or urban landscape that does not have access to “fresh, healthy, and affordable food.” This term has faced scrutiny from critics who point out that food desert is a gross oversimplification of a phenomenon due to complex social structures. The study of food deserts has also been limited by its largely quantitative nature. In my paper I explore a more qualitative approach to the examination of food deserts with the goal of understanding what life is like for those living inside a space deemed a food desert. More specifically I consider public transportation, income levels, food pantries, and power dynamics that characterize this neighborhood.

Keywords: Food Desert; Transportation; Supermarkets

Tuesday at 4:30 pm in LBC 327
Jelena Anna Juras
An Ounce of Prevention is Worth a Pound of Cure: Vaccine-Preventable Diseases in the Developed World
Faculty Advisor: Jenifer Seely

Since 2008, countries of the developed world like United States, Canada, United Kingdom, France and Germany, have been faced with increased number of vaccine-preventable disease (VPD) outbreaks. These countries have high quality medical services and spend the highest percentage of their GDP on the health care, yet are faced with preventable public health issues endangering thousands of lives. This paper examines the political reasons underlying the issue, more specifically the policy context including the health care system, existence of non-medical vaccine exemptions and presence of advocacy groups. The hypothesis is that the more autonomous the individuals are within a certain country the more likely it is for a country to have increased numbers of VPD. For example, private health care systems, greater opportunities for non-medical exemptions, and strong advocacy groups increase the autonomy of individuals with respect to their health care, but also increase the likelihood of VPD outbreaks. By examining country cases with a range of approaches to individual autonomy in the health care system, I can test whether increases in autonomy are linked to outbreaks of VPDs.

*Keywords: Vaccine-Preventable Disease; Healthcare Systems; Non-Medical Vaccine Exemption*

Monday at 4:30 pm in the Richmond Room

Nasser Karmali, Lara Khalifeh, Fadee Disoke, and Nhi Dinh
Effect of Video Games on Attention
Faculty Advisor: Kathy Milar

Using the signal detection theory that assumes that noise is always present in decision-making, creating an uncertainty, we are interested in investigating whether gamers who play highly stimulating first person shooting games are better at discerning information from noise. Previous studies have shown that video games could improve subjects performance on visual skills related to detecting objects in briefly flashed displays and alter the neural processes that support spatial selective attention.

We will conduct our experiment using DirectRT v 2012. There are 9 different conditions each containing Xs and Ys that are used to construct a 4x4 matrix with black Xs and Ys. Each condition has 60 different presentations of the matrix. The order of the conditions are randomized. A total of 540 matrices are presented to the participant and they will be asked to answer whether Y appears or not every time. The chances of Y being present in the matrix vary between 50%, 20% and 80%.

We will recruit two group of participants: non-gamers and gamers who play first-person shooting games. We hypothesize that the gamers group will perform better in detecting a signal, and therefore have a better ability to discern between information and noise.

*Keywords: Signal Detection Theory; Video Games; Attention*

Monday at 4:30 pm in the Richmond Room
Lara Khalifeh and Fadee Disoke
The Role of Praise in Fixed & Growth Mindset
Faculty Advisor: Rachael Reavis

People with a fixed mindset tend to believe that intelligence is innate and they tend to be discouraged by failure. People with a growth mindset tend to react to failures as opportunities to learn. They tend to put forth more effort. Praise can influence our mindsets. Praise such as, “You're smart!” can lead to a fixed mindset and can make people avoid challenges. Praise such as, “You worked hard!” can lead to a growth mindset and make people more willing to take on challenges and see them as learning opportunities. We are testing an additional form of praise: “You are the kind of person who works hard.” “You're smart” and “You worked hard” differ in at least two ways. “You're smart” is Identity Praise (it's about who you are as a person), and it focuses on intelligence. “You worked hard” is Process Praise that is focused on an action. “You are the kind of person who works hard” is Identity Process Praise. It addresses one's identity (“kind of person”) but moves the focus from intelligence to hard work. We will present the results of our study that is being conducted with college students.

Keywords: Praise; Mindset; Persistence
Monday at 5:15 pm in the Richmond Room

Rodoula Kyvelou-Kokkaliaris, Gwendolyn A. Claflin, and Hoang Tran
Faster Calculations of Diffusion Constants for Lipids, Water and Proteins
Faculty Advisor: Michael G. Lerner

We have taken two approaches to aid in the calculation of diffusion coefficients: first, we examine the statistical distribution of an ensemble properties of individual molecules to provide accurate estimates of diffusion coefficients as well as to assess the convergence of those diffusion coefficients. Second, we use non-equilibrium simulations, applying a constant force to selected molecules in near-equilibrium conditions. The mobility and diffusion coefficients are obtained from the terminal drift velocity. The results are generally found to be within a factor of 1.5 of the experimental constants, converge much more quickly than traditional techniques, and are well-suited for parallelization.

Keywords: Molecular Dynamics; Diffusion Constants; Lipids
Monday at 4:30 pm in the Richmond Room

Dakotah Lambert and Andrew Dai
A Workbench for Logically Definable Stringsets
Faculty Advisor: Jim Rogers

We have devised and implemented a suite of computational tools to support the manipulation of logically defined patterns of strings. Using these, we are building a workbench that allows one to define sets of strings in terms of logical constraints, to explore the consistency and independence of those constraints and to identify the set of strings that distinguish one set of constraints from another.
Our primary application domain is the patterns of stressed syllables that occur in the words of spoken languages. The workbench provides a fully declarative and relatively transparent method of formalizing these patterns as they are described by field linguists. Because there are well-known results relating the type of the logical formulae to the language-theoretic and cognitive complexity of the sets of strings they define, the workbench can be used to establish the complexity of these constraints.

*Keywords: Logic; Natural Language*

**Monday at 4:30 pm in the Richmond Room**

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**Asia Mapp**  
**Highlighting the Convergent Plight of African Americans and Tibetans: The Struggle To Regain Identity Amidst Cultural Loss**  
**Faculty Advisor: Joe Green**

The respective plights of African Americans and Tibetans converge at many points, revealing various similarities, as well as calling attention to the larger historical trends that plague human interaction and behaviors of dominance. As this research illustrates, the strong relationship between one’s connection and access to culture, and the ways in which this influences a sense of cultural identity have been disturbed in the case of both of these peoples, leading to countless consequences. The forced migration from their homelands and inherent separation from cultural knowledge, ancestral ties and community uphold have impacted and disoriented these group’s sense of cultural identity in a diverse range of ways. The ability to adapt and attempts to overcome suppression of their culture in various forms is an attestation to these group’s resilience. Each of these plights and the overarching systems of operation which allow them to persist are deserving of much further consideration.

*Keywords: Culture; Migration; Identity*  
**Tuesday at 4:30 pm in LBC 327**

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**Sarah Medlin**  
**Protestant Responses to Homosexuality in the 1970s and 1980s**  
**Faculty Advisor: Amy Bryant, Ryan Murphy**  
**Moderator: Amy Bryant**

I arrived at the Library of Congress hoping to answer the question of how Evangelical Protestants responded to the rising social acceptance of homosexuality in the 1970s and 1980s. To approach this question, I examined many different sources. I have compiled the most useful of these and provided an annotated bibliography. Through this research, I found that the dominant Evangelical Protestant response to homosexuality ranged from toleration to vehement condemnation. While the occasional theologian or prominent religious leader would argue for the reexamination of ancient standards of morality, most simply maintained that the Biblical prohibition on homosexuality was equally relevant today.
This research will be incorporated into my senior thesis, which will examine the connections between the division in Indiana Yearly Meeting (a Quaker organization) in the 1840s over aggressive abolitionism and the recent division in Indiana Yearly Meeting precipitated by a monthly meeting’s "welcoming and affirming" minute, which was a document that welcomed all people, regardless of race, gender, mental and physical ability, and sexual orientation (the contentious issue) to fully participate in the worship and business of the meeting.

Wednesday at 1:00 pm in LBC 327 as part of the Group Panel:

Library of Congress Research Trip 2014

Panel Abstract: Students and faculty spent two weeks at the Library of Congress researching the relationship between cultural and economic values in the struggle over sexual freedom and conservative resurgence in the 1970s. Each researcher chose a more specific topic which contributes to a fuller picture of the political and social values landscape.

Keywords: Sexuality; Conservatism; Morality

Maria Mercado
Creativity and Sensory Stimulation
Faculty Advisor: Judy Wojcik

This research focuses on the life sustaining aspect of creativity. Participating in the Ford/Knight; Sustainable Ceramics has provided me with the opportunity to investigate why a lifetime involved with creating might be important to an individual. As a Human Development and Social Relations major, the reason I did this study is to discover the way creativity develops in an individual and the environmental factors that cause an increase or decrease of activity in one’s brain. The purpose of this research was to identify and gain a better understanding of how different sensory stimuli associated with the arts impact the artist and non-artist. The way in which I address the questions of my research is through a concise form of the Torrance Creativity Test. The participants of the research were exposed to different sensory stimulation, that are the experimental factors; Instrumental music, Silent video, fragrance, sweets and clay. The data was collected through a questionnaire (3 Question) of short answers. Answers were have scores on a scale from 1 to 5 on creativeness. At last, participants chose their best 2 answers and final scores were determined by these.

Keywords: Creativity; Sustainable Ceramics; Sensory Stimulation

Monday at 5:15 pm in the Richmond Room
Soe Yu Naing, Hao Nguyen, Cynthia Tanzer, and Ariona Anderson  
Faculty Advisor: Rajaram Krishnan  
Moderator: Pelle Tracey

Tuesday at 5:45 pm in LBC 327 as part of the Group Panel:

Issues in Transition from High-School to College

Panel Abstract: Our group did research on the comparison between high school and college interpretation of preparedness. In this study, preparedness entails the following: academic proficiency (core Math, English, and Critical thinking), technological capabilities, individual traits and characteristics, and quality of education received at the high school level.  
*Keywords: Transition; Preparedness; Education*

Sierra Newby-Smith  
Retrofitting Mao in Mexican Agrarian Tradition  
Faculty Advisor: Nydia Martinez  
Moderator: Nydia Martinez

The combination of historical Mexican agrarian movements and the international moment of the 1960s allowed Maoist ideology to manifest in Mexico. The influence of urban student movements, international movements and the agrarian past made it possible for La Colonia to claim a Maoist identity.

Tuesday at 4:30 pm in LBC 315 as part of the Group Panel:

Mao in the Land of Zapata: A Socialist Commune in the Midst of the Mexican Dirty War

Panel Abstract: We present an analysis of the 1973 Maoist commune, La Colonia Rubén Jaramillo in Morelos, Mexico. We will discuss agrarian movements in the 60s and 70s, the factors that allowed the commune to identify as Maoist, and the remembrance and legacy this socialist effort left in Mexican history.  
*Keywords: Maoism; Agrarian Movements; Mexican Dirty War*

Dong Ngo  
Adiponectin Impairment Disrupts Acetylcholine-Induced Aortic Relaxation after Angiotensin II-Induced Vasoconstriction: A Novel Mechanism for Hypertension Exacerbation in the Metabolic Syndrome  
Faculty Advisor: Peter Blair

Hypertension is a major risk factor for cardiovascular disease, a significant cause of worldwide morbidity and mortality. The current study investigated the vaso-effect of
physiologic adiponectin (APN) concentrations upon Ang-II-induced vasoconstriction in mouse aortae. Consistent with previous reports, APN at supra-pharmacologic levels causes significant vasodilatation. However, physiologic APN concentrations alone failed to cause significant arterial relaxation. Interestingly, pretreatment of wild type mouse aortae with physiologic APN levels significantly enhanced acetylcholine (Ach)-induced vasodilatation (10-5M Ach vasorelaxation: 78±9% vs. 68±11%, P<0.05; time to maximal vasorelaxation: 4.1±0.2 min vs. 6.1±0.4 min, P<0.05). Although physiologic APN levels are insufficient to antagonize vasoconstriction caused by hypertensive mediators such as Ang-II, it enhances vasorelaxative response to vasodilatory factors (such as Ach) by inducing nitric oxide (NO) production via AdipoR1/Cav-1 mediated signaling. Pathologic conditions impairing APN, such as diabetes and metabolic syndrome, may therefore instigate hypertension development. Therapies restoring APN may represent novel modalities preventing hypertension onset and its costly complications.

Keywords: Hypertension; Adiponectin; Vasorelaxation

Monday at 5:15 pm in the Richmond Room

Gabriel Penk
Frederic Church and Exotic Landscapes
Faculty Advisor: Scott Hess
Moderator: Scott Hess

I will investigate the relationship between Frederic Church's paintings of the American landscape and of South America. Understanding that American landscape painting in the mid-19th century often constructs national identity, I will question the role of landscapes depicting exotic landscapes like Church's "Heart of the Andes" in the creation of this identity. In particular, this paper will compare the dramatic, sublime portrayal of an explicitly American landscape in Church's paintings to that of his similarly spectacular paintings of South American landscapes. Given that the greatest difference lies within geographic and biological rather than stylistic or aesthetic variation, I will address the influence of European thinkers such as Humboldt and Ruskin on the scientific realism that Church exemplifies. My research will center on the question of whether Church's paintings of South America help solidify a distinct American landscape and identity and how Church's fascination with difference and a belief in the truth of science shapes his representations of landscape and national identity.

Wednesday at 1:00 pm in LBC 317 as part of the Group Panel:

Nature and Identity in Romantic Landscape Painting

Panel Abstract: In this panel, three students will present papers on the their main research project for a Ford/ Knight collaborative project in the current semester, on the topic of “Nature and Identity in Romantic Landscape Painting.”

Keywords: Landscape Painting; Nature; Identity
Chisama Ku Penn  
**Fabrication of Authenticity: Why Afro-Brazilian Samba Became Brazilian Samba**  
Faculty Advisor: Joann Quiñones  

During carnaval, Brazil’s largest and most popular festival, onlookers and participants engage in the music and dance of samba has to offer. Samba, one of the most popular expressions of Brazilian culture, is defined in terms of its relationship to Brazilian identity as a whole. However, up until the 1930s it was seen as solely an Afro-Brazilian practice that had connections to the cultures brought by African slaves. In Brazil’s history, there was a shift in how samba was perceived by the national and global communities. It became a popularized event that attracted people from all over the world and brought millions of tourist dollars to the country. Why did this change happen and how did it affect Afro-Brazilian identity? A change in nationalism and social relations, and the desire to appeal to an elite class were directly related to this cultural shift. This shift, however, neglected Afro-Brazilian cultural identity and failed to give Afro-Brazilians the representation that they deserved as contributors to Brazil’s new popular and modern culture.

*Keywords: Race Relations; Latin America; Culture*

**Tuesday at 4:30 pm in LBC 327**

Clarice Perryman and Emma Hauser  
**Geoarchaeology and the Basketmaker Communities Project**  
Faculty Advisor: Cynthia Fadem

Dryland agriculture has been an important component of crop production in the western United States for centuries. Knowledge about the impacts of dryland agriculture on available soil resources can inform modern farming practices in desert areas, particularly as soil erosion and degradation increases.

This study focuses on analysis of desert soils from Basketmaker III (1250-1500 BP) archaeological sites in the Mesa Verde region of Colorado. Field and lab analyses in 2014 revealed that a carbonate precipitate layer accumulates in the soils of archaeological sites, possibly from agricultural use. As precipitate accumulation limits agricultural productivity, the rate of pore closure and soil hardening is an important factor in agricultural site choice and long-term soil use-life.

To examine the effect of precipitate accumulation further, we are analyzing thin sections for soil micromorphology, which will provide evidence for changes in soil structure at former agricultural sites. Soil structure data will inform previous analyses of Mesa Verde region soils to elucidate the archaeological and agricultural history of the Mesa Verde region. Comparing changes in soil micromorphology to land use differences will also have implications for the long-term sustainability of modern dryland farming.

*Keywords: Geology; Geoarchaeology; Soils*

**Monday at 5:15 pm in the Richmond Room**
Mikel Qafa
Lack of Internal Elite Dissent Sustains the Chinese Communist Regime
Faculty Advisor: Allison White

Communist regimes collapsed in most countries, but those remaining are struggling to maintain power unless they take a different lead on the matter of dissent and the rise of pluralism. Different regimes have employed unique techniques to preclude pluralism. China has followed the path of a socialist market economy with a strong interventionist hand. The Chinese communist regime is not threatened by the rise of pluralism even 60 years after it was established as the ruling power. The reason why this regime has never been overthrown or will not be in the near future is because of the lack of dissent among the elites of the Chinese Communist Party and their unwillingness to lead the people against the ruling regime. The Chinese government has focused their attention and funds in an area they did not before, clamping down on protests and using different mechanisms to assert the legitimacy of their rule. I test the same argument on the Cuban communist regime and find that despite the differences between these two regimes, neither can be overthrown without the rise of elite dissent. Control of the elite dissent in the 21st century calls for new policies, and the Chinese government is in the process of implementing those.

Keywords: Elite Dissent; Chinese Communist Party; Pluralism
Tuesday at 5:45 pm in LBC 315

Ashutosh Rai, Jinhee Kim, and Benjamin Yee
Molecular Dynamic Studies of Z[WC] DNA and the B to Z-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 ZII-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] forms 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. A careful combination of steered and targeted molecular dynamics, along with umbrella sampling, are used to produce potentials of mean force for both the direct and the B-Z[WC]-ZII pathways.

Keywords: Biophysics; DNA; Computational Physics
Monday at 5:15 pm in the Richmond Room

Max Raskin and Hope Safford
The Use of English in Introductory Language Classes
Faculty Advisor: Akiko Kakutuni

This project sought to clarify several questions regarding teaching practices in 101 foreign language classes. How much English (L1) should be used to teach a target language (L2)? Is immersion-based learning always effective? How does the professor and the specific group
of students affect the amount of English used in a 101 class? Using observations and data from six different language classes, we compiled data that shows a wide variety of effective foreign language teaching methods. This is a small-scale research project that looks solely at language classes at Earlham College in the Fall of 2014, and therefore the information cannot be universally conclusive. However, the data is still indicative of several ideas supported by previous research in the subject. Namely, that students’ motivation for learning the foreign language plays a role in their engagement, and a pedagogical stance that allows for limited L1 use when necessary is probably the most effective.

Keywords: Teaching; Immersion; L1/L2

Wednesday at 1:00 pm in LBC 316

Joshua Reaves
Democracy and Work: The Co-Operative Movement and Societal Reproduction
Faculty Advisor: Joanna Swanger

When Dwight Schrute from The Office exclaims to a room of salesmen that “Blood alone moves the wheels of history!” he is meant to invoke Mussolini and fascist rhetoric, a jingoistic sense of violent, national pride, and extend this to make the workplace a “nation” within itself. This is intended as a joke, but what if Dwight’s message was true? Blood, as a synonym for violence, is what power is predicated upon, what states are held together by, and what marks the changing of epochs by historic measure. The use of violence, force, and coercion are often regarded as cruel, but they are the fabrics that tie modern societies together, even and especially the “war of work,” as Dwight describes. The “Cooperative Movement,” a social justice/business fusion designed around the promotion of non-hierarchical work spaces and hearkening to previous cooperative work spaces, tries to empower peaceful resolution and have, as coined by Richard Wolff, “Democracy at Work” Here, I will interrogate this movement and the cooperative businesses themselves, to prove their conceptual similarity to both normal, “non-democratic” workspaces and, thus, prove their existence as an extension of the brutality of the workplace and of society itself.

Keywords: Co-Operative; Work; Structures of Violence

Tuesday at 4:30 pm in LBC 327

Sadie Rehm o
Space, Time, and Modernity in One Hundred Years of Solitude
Faculty Advisor: Rodolfo Guzman

One Hundred Years of Solitude, written by Gabriel Garcia Marquez, details the lives of eight generations of the eccentric Buendia family in the fictional city of Macondo. The novel is often considered to be a metaphor for the experience of Latin America and its conflicting identities, describing the arrival of western industry in Macondo. Linear and cyclical perceptions of time coexist in the novel, putting into question the character of space, time, and human agency.
In this essay, I interrogate the discourse of modernity in One Hundred Years of Solitude. First, I consider "modernity" as an economical, social, and philosophical concept, informed by the work of David Harvey and Marshall Berman. Next, I analyze the presence of modernization in the novel, focusing on the manipulation of time and space by Marquez. Two important themes inform my analysis: the imposition of linear time in Macondo with the arrival of a banana company and its coexistence with cyclical perception of time in the greater narrative of the novel, and nature as a metaphor for the failure of modernity in Macondo. Finally, I consider the importance of this interpretation of the novel in how we understand the history and existence of Latin America.

*Keywords: Modernity
Wednesday at 1:00 pm in LBC 316*

**Sadie Rehm**
"El Güero" Medrano in Contemporary Scholarship Concerning the Colonia Rubén Jaramillo

**Faculty Advisor: Nydia Martinez**
**Moderator: Nydia Martinez**

Elena Poniatowska's semi fictional portrayal of Mexican Maoist guerrilla Florencio "El Güero" Medrano informs nearly all contemporary scholarship on the colonia Rubén Jaramillo which Medrano helped establish in 1973. Analysis of the colonia and the Maoist rhetoric informing its development often focuses on Medrano and his charismatic leadership, and relies uncritically on Poniatowska's construction of the leader. In this essay, I seek to examine how Poniatowska's portrayal of Medrano functions in analysis of the colonia Rubén Jaramillo. His depiction as a male revolutionary hero whose leadership inspired peasant mobilization - a recurring trope in Mexican history - obscures the participation and agency of the colonia's inhabitants, and reinforces the narrative of proletariat dependence on a strong leader.

*Tuesday at 4:30 pm in LBC 315 as part of the Group Panel:*

**Mao in the Land of Zapata: A Socialist Commune in the Midst of the Mexican Dirty War**

**Panel Abstract:** We present an analysis of the 1973 Maoist commune, La Colonia Rubén Jaramillo in Morelos, Mexico. We will discuss agrarian movements in the 60s and 70s, the factors that allowed the commune to identify as Maoist, and the remembrance and legacy this socialist effort left in Mexican history.

*Keywords: Maoism; Agrarian Movements; Mexican Dirty War*
Nicky Sontag, Quina Weber-Shirk, and Vesta Davis  
Materials Under Foot: Locally Sourced Glazes  
Faculty Advisor: Judy Wojcik

Naturally sourced glazes are a vital component of creating more sustainable practices of ceramics; creating a direct connection between potters and their environment. Our research examines the process of making glazes, and explores the feasibility of glazes using all locally sourced native and recycled materials that can be fired at mid-range or high-fire temperatures in the Earlham College kilns. By experimenting with local materials, we can see how local wood (oak, walnut, cherry, and ash), local clay bodies, and recycled granite affect the characteristics of the glaze. The first step is to process the materials – burning the wood and collecting it as ash, and sieving it to create a uniform small particle size; drying the local clay and grinding it into a powder; breaking the granite up with a hammer, and grinding it into a powder. We then combine these materials in different ratios using the triaxial blend method, and fire test tiles with these combinations to determine the most viable glaze recipe. The desired result of our research is to have at least two functional glaze recipes that can be reproduced by future students.

*Keywords: Sustainable Ceramics Practices; Natural Materials; Local Aesthetic*

**Monday at 5:15 pm in the Richmond Room**

Katherine Sorrows  
Benefits of Implementing Consensus in Education  
Faculty Advisor: Len Clark

This project provided an opportunity for me to examine my interest in education. I wanted to know whether using consensus in the classroom helped students feel safer, and more engaged in their education thus making them more committed to the process and what they are learning. I examined the use of consensus at the Richmond Friends School, interviewing Head of School Marcie Roberts and other teachers. I performed an interview with Professor Paul Lacey about how he has used consensus in the classroom and seen it used in administration and other settings. I read books and selections about consensus in education, including work by Professor Lacey. I compiled ideas for ways that consensus could be used in different classroom settings. I outlined applications of consensus for the experiential program at my former high school offers, as well as developed ideas that I could incorporate into my repertoire for teaching both in classrooms and in Outdoor Education settings. I hope to work with the Outdoor Education department to help introduce consensus to instructors and students in Outdoor Education both at Earlham and in other experiential education settings.

*Keywords: Consensus; Education*

**Monday at 5:15 pm in the Richmond Room**
Hope Steiner  
Religion in the Romantic Landscape  
Faculty Advisor: Scott Hess  
Moderator: Scott Hess

In my paper, I aim to examine the inclusion of religious motifs and buildings, specifically churches and cathedrals, by English artists into landscape paintings. To do this, I will make an in-depth study of paintings from the Romantic era by artists such as J.M.W. Turner and John Constable. In these paintings, churches often serve as central points for the viewer’s eye to focus on. Even when the building is on a small scale and barely perceptible to the viewer’s eye, such as in John Constable’s "The Stour-Valley with the Church of Dedham" (1814), the church plays an important role in cementing the viewer within the landscape. The inclusion of churches in these paintings offered a familiar element to a viewer to whom the place of the painting might not be well known. The aim of my paper, is to examine how English painters included religious buildings in their landscapes in order to give the viewer an object with which they could identify.

**Wednesday at 1:00 pm in LBC 317 as part of the Group Panel:**

Nature and Identity in Romantic Landscape Painting

Panel Abstract: In this panel, three students will present papers on the their main research project for a Ford/Knight collaborative project in the current semester, on the topic of "Nature and Identity in Romantic Landscape Painting."

*Keywords: Landscape Painting; Nature; Identity*

Allison Sturm  
Attitudes toward Native Americans  
Faculty Advisor: Rachael Reavis

This study explored the social perception (stereotyping, discrimination, and prejudice) of Native Americans. The study examined participant’s perception of alcoholism between a Native American and Caucasian male in their mid-twenties. The two scenarios involved both a Native American and a Caucasian male applying for the same job as a waiter at an upscale Bar and Grill. The participant’s task was to read either the resume by the Native American or the Caucasian man who had a previous addiction to alcohol which is why he had to leave his previous job. After reading one of the resumes, participants answered a questionnaire concerning the likelihood of whether or not they would hire this person, is this person competent enough, do they think this person will relapse at their job considering that there is a bar at the restaurant, etc. It was predicted that participants would rate the Native American harsher than the Caucasian especially in terms of relapse expectancy.

*Keywords: Native Americans; Alcoholism; Stereotyping*

**Monday at 5:15 pm in the Richmond Room**
Colin Ulin
I Speak Therefore I Am: How Language Makes Reasoning Possible
Faculty Advisor: Kathy Milar

Studies on spatial reasoning show that children and animals have difficulty orienting themselves based on information from different domains, such as landmarks and room shape. Adults easily combine this information in normal and control conditions, but perform significantly worse when involved in a linguistic shadowing exercise, suggesting that language is implicated in certain cognitive tasks. The reason for and degree to which language augments cognition is explored in the current study through college student participants’ concurrent completion of a difficult spatial reasoning test and a secondary task involving word association, verbal shadowing, or non-verbal shadowing. Results indicated that inhibiting the use of language significantly decreased performance on difficult reasoning puzzles. Furthermore, participation in the word association condition resulted in the lowest test scores, demonstrating that creating connections between different concepts is one way in which language improves cognitive ability.

Keywords: Language; Psycholinguistics; Reasoning

Wednesday at 1:00 pm in LBC 315

Tara Urner
Dasein and Discourse
Faculty Advisor: Kevin Miles; Ferit Guven
Moderator: Kevin Miles

Heidegger states that Dasein’s attunement to the world is equiprimordial with understanding. This means that just by being attuned to the world Dasein gains a certain understanding of world. If attunement discloses Dasein as being in the world and thereby linked in to a totality of relevance, then understanding is what allows Dasein to glimpse that relevance. Attunement allows things to first become relevant to Dasein by disclosing Dasein as a being that is “there” and that has some orientation towards other beings based on signs. Understanding is the mode in which Dasein observes these signs. This understanding also contains an interpretation, which is a mode of understanding that is more explicit. In interpretation Dasein is making sense of something. If understanding brings to light the situation of Dasein within the totality of relevance, then interpretation begins to make some sense out of that totality in preparation to make statements about it.

Tuesday at 5:45 pm in LBC 317 as part of the Group Panel:

Interpretations of Martin Heidegger’s Being and Time

Keywords: Philosophy; Being & Time; Phenomenology
Cameron Van Cleave and Andrew S. Hood  
**Phosphate Remediation Using Local Waste Water Treatment Plants in the Whitewater River in Richmond, IN**  
Faculty Advisor: Demian Riccardi

Modern food production results in large amounts of fertilizer entering streams, rivers, lakes, and oceans. The resulting influx of nutrients upsets the natural ecological balance of aquatic communities. One significant consequence of this perturbation is the formation of a large seasonal dead zone in the gulf of Mexico near the mouth of the Mississippi River. In response to a request by the Richmond Waste Water Treatment Plant (WWTP), we have developed a simple model to evaluate strategies for reducing total phosphate (TP) pollution. We compare two strategies: 1. use of microfilters to minimize TP output at point sources (e.g. WWTPs) and 2. use existing technologies at WWTPs to remediate TP in local streams. TP levels and flow-rates were characterized upstream from the Richmond Sanitary District WWTP on the East Fork of the White River in September and October of 2014. The measured TP levels, when combined with flow-rate data, indicate that reduction at point sources would not significantly impact pollution levels. Rather, our model shows that remediation by WWTPs is 20-40 times more effective. We conclude that the only viable approach to reducing TP levels will include a remediation strategy alongside federal regulations on nonpoint sources (e.g. farms).

*Keywords: Phosphate; Eutrophication; Remediation*

**Monday at 5:15 pm in the Richmond Room**

Anastasia Vladimirova  
**Criminalizing Journalism: Edward Snowden's Prosecution as a Manifestation of Lawmaking Violence Exercised by the Obama Administration**  
Faculty Advisor: Joanna Swanger

This research focuses on the prosecution of Edward Snowden, the National Security Agency (NSA) contractor who disclosed classified documents about mass surveillance to journalists Glenn Greenwald and Laura Poitras. While the journalists realized they could be threatened with criminal charges for using classified information in their reporting, Snowden has been charged with three felonies, including two under the Espionage Act, the 1917 statute enacted to criminalize dissent against World War I.

By threatening with criminal charges the investigative journalists who use classified information in their reporting, the U.S. government deliberately prevents its citizens from having the necessary conditions to act independently and to be self-governing, ends that the state promises its citizens, and ends which it is the journalist’s first obligation to guarantee citizens. This kind of criminalization rejects the rights its people are entitled to by the U.S. Constitution and therefore undermines in a very visible and undeniable way the very nature of the U.S. as a democratic state.
Using the existing legal literature, I analyze the statutes to prove that the U.S. government’s attempts to criminalize Snowden’s case is an example of a state acting without regard to the legal framework outlined by the Constitution.

*Keywords: NSA Surveillance; Law; Freedom of Speech & Press*

**Monday at 4:30 pm in the Richmond Room**

Anastasia Vladimirova  
National Silence. The 2012 Press and Publications Law and Media Freedom in Jordan  
Faculty Advisor: Helena Kaler

As the Arab Spring unfolded, for the people in the Middle East and North Africa, the new media became an important platform for demanding political, social and economic change. Shortly after the beginning of the Arab Spring, the Jordanian government implemented Amendments to the Press and Publications Law, which, according to independent journalists and their audience, was an act of censorship.

I analyze the effects of the law on the freedom of expression in the country, the timing of the amendments and, whether both the government and the new media are following the new regulations.

My research is mostly based on the interviews with journalists, editors, activists, bloggers, researchers and media lawyers in the country. It provides strong evidence that suggests that the Amendments to the Press and Publications Law was the government’s attempt to establish more control over independent news websites and blogs, as well as over individual citizens. It is arguable whether the country would have faced a violent revolution if the Jordanian government did not implement such changes. However, much evidence suggests that the amendments had a preventative character so that a scenario similar to the one in neighboring countries did not repeat in Jordan.

*Keywords: New Media; Jordan; Censorship*  
**Monday at 5:15 pm in the Richmond Room**

Sokhna Vor  
**What is the Impact of FDI on Domestic Firm’s Productivity?**  
Faculty Advisor: Rajaram Krishnan

Economic activities of multinational firms bring spillover effects to domestic firms in various ways. Domestic firms are influenced to entry into export market and improve their production efficiency when they can imitate, interact, and compete with multinational firms. These spillover channels become weak, when high presences of multinational firms are overwhelmingly export-oriented. Productivity gains depend on absorptive capacity of domestic firms. A pre-existing large domestic firm would benefit from the high presence of multinational firms greater than do small domestic firms. Using the World Bank enterprise survey, I expect high presence of foreign owned enterprises in Cambodia affect positively on domestic firms’ productivity in some sectors and regions.
Keywords: Foreign Direct Investment; Spillover Effect; Productivity
Monday at 4:30 pm in the Richmond Room

Quina Weber-Shirk
Co-optation and Control: Political Integration and Repression of the Colonia Ruben Jaramillo
Faculty Advisor: Nydia Martinez
Moderator: Nydia Martinez

For the eight months that the Colonia Proletariana Ruben Jaramillo existed in 1973, its presence outside of Cuernavaca, Morelos evoked questions about political integration, state cooptation, and control. Whether it is framed as a squatter settlement, an autonomous proletarian commune, or an insurgent community base for a Maoist struggle, descriptions sketch a complicated relationship between the state and the colonia. This complicated relationship is most clearly seen in the contradictory ways that it is portrayed in primary and secondary sources, and points to divergent models of social organization that read the state's integration mechanisms in opposite ways.

Tuesday at 4:30 pm in LBC 315 as part of the Group Panel:

Mao in the Land of Zapata: A Socialist Commune in the Midst of the Mexican Dirty War

Panel Abstract: We present an analysis of the 1973 Maoist commune, La Colonia Rubén Jaramillo in Morelos, Mexico. We will discuss agrarian movements in the 60s and 70s, the factors that allowed the commune to identify as Maoist, and the remembrance and legacy this socialist effort left in Mexican history.

Keywords: Maoism; Agrarian Movements; Mexican Dirty War

Samuel Weitekamp •
Syncytin Symbiosis and Integration with the Human Genome
Faculty Advisor: Bob Rosenberg

Syncytin is an endogenous retrovirus, or viral residue that exists on chromosome 7. It exists in a region of our genome that comes from a viral origin and has existed in our genome at least since the divergence of primates. Though parts of this viral area have been spliced out, several studies have shown that syncytin is crucial to our reproductive success as it assists with the creation of the syncytiotrophoblast, a membrane that covers the placenta during pregnancy. Studies have shown in mice that knocking out the genes that this region codes for prevents the successful birth of offspring. Using this example, I hope to help to change our conventional viral models, which suggest that viruses are inherently disease-causing.

Keywords: Endogenous Retroviruses; Virology; Symbiosis
Tuesday at 4:30 pm in LBC 317
Samuel Weitekamp  
**Trying to Understand the First Two Chapters of Sein und Zeit**  
Faculty Advisor: Kevin Miles; Ferit Guven  
Moderator: Kevin Miles

In the first two sections of Being and Time, Heidegger lays out some foundational claims about one’s relation to Dasein. One of these is that Dasein is "always-being-mine" (p.42), which means that when I speak of Dasein, I am speaking about and out of my own relation to Dasein. That is to say that Dasein is not objective because it is something that I always already am non-objectively and it cannot be objectified in a worldly sense because it is my being-in-the-world as Heidegger discusses later, but also in a similar vein, it is not something that belongs to that organization of world (Vorhandenheit). However, it would also be improper to imagine a series of individual Daseins belonging to each individual person because Dasein is not something that is multiple and differentiated. Both of these interpretations are useful though because each of them point to an aspect of what Heidegger means by always-being-mine. The idea of objectivity in relation to Dasein is useful because it offers a view of Dasein as something that not differentiated for us as beings while the idea of individual Daseins is useful because it suggests that Dasein is not something that is indifferent or overarching.

**Tuesday at 5:45 pm in LBC 317 as part of the Group Panel:**

**Interpretations of Martin Heidegger’s Being and Time**

_Keywords: Philosophy; Being & Time; Phenomenology_

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Zoe Wolfe ✪

**Pupil Dilation in Response to Impression Formation**

Faculty Advisor: Kathy Milar

The non-light related pupil reflex has been recognized as a means of quantifying autonomic processes and cognitive functioning. There is evidence that individuals’ attitudes toward images, people, and other stimuli may be reflected in pupil dilation fluctuations, and studies focusing on impression formation could provide insight into how information affects and helps form attitude. Here, participants were exposed to images of a man both before and after receiving information regarding his identity. During this process, pupil dilation was recorded. Although results were insignificant, means suggested that individuals show greater pupil dilation upon second viewing of a person when they have a positive or negative impression of that individual, as opposed to a neutral attitude. Though the written information regarding the individual was effective in creating impressions of the test character, more refining of methods and information content need to take place before pupil dilation can be considered a reliable measure of attitude.

_Keywords: Impression Formation; Attitude; Pupilometry_

**Tuesday at 4:30 pm in LBC 317**
Ann Wright  
Makeing Space: Feminist Poetry in French and American Sign Language  
Faculty Advisor: Kathy Taylor

Literature is a space in which the exclusion and othering of women is marked and from which a genuine female experience is hidden. Language is inextricably tied to the patriarchy; a tool of the oppression it enacts, a product of its existence and a means for creating and sustaining its presence and power. Women, through language, are made subaltern and their voices are made less valid, their experiences unnecessary. However, it is also through language, and specifically in poetry, that women have found a way to re-voice themselves; to re-purpose and take control of the language that is oppressing them for their own liberation. I work to identify the means of their silencing and the many ways that these writers engage with their language to find voice.

Keywords: Poetry; Feminism; French; ASL  
Tuesday at 4:30 pm in LBC 317

Benjamin Yee, Kristin Muterspaw, Tara Urner, George Crowson, Sadie Coughlin-Prego, and Deeksha Srinath  
Design, Testing and Analysis of an Inexpensive Field Work Platform  
Faculty Advisor: Charlie Peck

One of the difficulties field scientists face most often is data collection. To collect all of the desired parameters, multiple devices, each with their own software and data storage systems, are used, which can lead to difficulties with data unification and analysis. As a possible solution to these problems, we designed Seshat, an Android application that collects and stores geocoded data from a variety of environmental sensors. We tested our application using Nexus 7 tablets and self-designed and built sensors in the field in Iceland and Nicaragua. While testing this, we took soil samples from different sites from which we extracted DNA. From the DNA we isolated the 16S gene, a gene present in all prokaryotic organisms that can be used for species identification, and sent this out for sequencing. The sequencing results were then analyzed by Mothur, an open source program that outputs a list of microbial species from the sample and their relative abundances. Overall, we have developed a straightforward, inexpensive method of data collection and analysis we hope to make available to scientists or other individuals looking to perform field work.

Keywords: Field Science; Geocoded Data Collection; Metagenomics  
Monday at 4:30 pm in the Richmond Room

Tiyei Zhang  
Anti-War Student Movements in the United States: A Comparison between Vietnam and the Gulf War  
Faculty Advisor: Deb Jackson

Student activism has been an important part of life on U.S. college campuses at least throughout the 20th century and up to the present. This paper will focus on the
motivations of students, and the sociocultural and political context within which these movements occur. I will consider two main historical periods: the Vietnam War era in the late 1960s and early 70s, and the Gulf War period of the early 1990s. This presentation will consider some of the main commonalities and connections, as well as some of the major differences, between campus social movements of these two eras. In concluding, I will reflect on the implications of the findings for understanding contemporary student activism.

*Keywords: Student Activism; Vietnam War Era; Gulf War Era*

*Tuesday at 5:45 pm in LBC 315*
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