



WABASH COLLEGE

**12th Annual Celebration of Student
Research, Scholarship, and Creative Work
Friday, January 27, 2012 • Detchon Center**

Welcome and Introduction

From Dean of the College Gary A. Phillips

Welcome to the 12th Annual Celebration of Student Research, Scholarship, and Creative Work at Wabash College. For the past 11 years, the College has recognized in a proud and public way the creative accomplishments of Wabash students. We celebrate not only the particular achievements of individual students, but also a deeply embedded ethos of the College. Student engagement stands at the center of the Wabash mission to change lives. The impressive breadth and quality of student creative work is evidence of the challenge and change that marks the Wabash experience.

This program is dedicated to the memory of Paul Caylor McKinney, '52, who passed away in 2003 after a courageous battle with cancer. Dr. McKinney proudly served the College for more than half a century as chemistry teacher, department chair, division chair, and Dean of the College. He was an exemplar of the liberally educated person whose interests ranged from quantum mechanics to Plato, from playing the piano to pondering Nietzsche. He acted in Wabash College Theater productions and was often found backstage working on difficult equations in his notebook. Among Wabash men, he would well understand and appreciate everything presented today; he would be the first to celebrate the successes of Wabash students and faculty members.

Close collaboration between Wabash students and faculty across the College is a hallmark of our culture, a labor of pedagogy and love that makes a difference for our students. It is a special pleasure to introduce some of the results of that collaboration in these presentations. Our thanks go to the students who are prepared to teach the Wabash community about their good work and to the faculty and staff members who have devoted considerable time helping students in their research and creative productions.

A conference of this size and scope would not be possible without the dedicated work of many people. I want personally to express my thanks to the planning committee: Chair Lon Porter, Jim Amidon, Jeff Beck, Preston Bost, Jerry Bowie, Peter Hulen, and David Kubiak. Scott Feller, Matt Roark, and Jamie Ross have contributed to the poster production, as have other Media Center and IT Services staff; Ed McGaughey and Marge Fuentes and their Campus Services colleagues, and Kecia Tatman and Mary Jo Johnston and her Bon Appetit staff make the logistical support appear effortless. We also extend gratitude to Adam Bowen and Chris Duff for their help. We are grateful to all, and especially to Lilly Endowment, Inc., whose grant to the College to fund the Center of Inquiry in the Liberal Arts helps support this community Celebration.

Gary A. Phillips
Dean of the College

About the 12th Annual Celebration of Student Research, Scholarship, and Creative Work

Schedule for Oral Presentations

Oral presentations will begin at 1:10 p.m. and continue every 20 minutes through 4:20 p.m. In general, students will present information for 12-15 minutes with a few minutes for questions and passing time. Please see the following two pages for a list of oral presentations by room location and time slot. Names of the presenters, as well as their sponsors and abstracts, are listed in alphabetical order beginning on page 8.

Schedule for Posters and Exhibits

Students will present and discuss their posters and exhibits in 90-minute increments beginning at 1:00 p.m. in Detchon International Hall and the Detchon Reading Room. You will find a list of presenters and their locations — sorted alphabetically by lead presenter — beginning on page six. A diagram of International Hall and the location of the various posters is available on page seven. Names of the poster presenters and co-presenters, as well as their sponsors and abstracts, are listed in alphabetical order beginning on page 20.

Schedule of Oral Presentations by Time Slot and Location

Detchon 111

1:10	Robert Dixon	St. Augustine, Florida as a Mirror of New World Imperialism
1:30	Kenneth Farris	Watching a Tyrant Die: Body Politics and the Libyan Uprising
1:50	Kris Klondaris	NATO Intervention: The Delusion of Democratic Ideals
2:10	Ian Muller	Tristan and Nietzsche: The Reevaluation of Love through Subjectivity
2:40	Kyle Bender	Trends within Presidential Inaugural Addresses, 1913-2008
3:00	Anh "Tommy" Le	Predicting Smoking Behaviors of Current Smokers in the United States: Age, Race, Sex and Education
3:20	Adam Miller	Applying Rhetoric to Change Lives: My Plans to Start a Non-Profit Organization
3:40	Yangnan "Paul" Liu	Game On: How Marketers Integrate Gaming Dynamics in Strategy
4:00	Ben Cook	Treasure Bay Miniature Golf

Detchon 112

1:10	Donovan Bisbee	"Looking for a Home Called Earth:" The Search for Home, Identity, and Survival in <i>Battlestar Galactica</i>
1:30	Wyatt Lewis	Desiderio: The Postcolonial Narrative of a Fractured Self
1:50	Michael Wright	"What Makes a Man?" A Gender Analysis of the Coen Brothers' <i>The Big Lebowski</i>
2:10	Peter Gunderman	"Waiting for Superman" and Its Effect on Public Discourse
2:40	Scott Walker	"A Generation of Men Raised by Women": A New Perspective on Male Gender Identity in Chuck Palahniuk's <i>Fight Club</i>
3:00	Reed Hepburn	Julie Taymor's <i>The Tempest</i> : Gender Deviance from Script to Screen
3:20	Gregory Huey	Walt Disney Films and Gender Roles: Shaping the Future
3:40	Riley Floyd	"Could One But Seize It:" Virginia Woolf and "The Proper Stuff of Fiction"
4:00	Wyatt Lewis	Michael Corleone: Traditional Masculinity as Puppeteer

Detchon 209

1:10	Geoffrey McKinney	Modern Theories of Story Formation
1:30	Jordan Plohr	Making Meaning in Contemporary Theatre Architecture
1:50	Joe Reese	<i>Alpha Echo Three</i> : An Original Screenplay by Joe Reese '12
2:10	Ian Grant	"Smoker's Choice" and other Poems
2:40	Reginald Steele	From Negro Spirituals to Black Gospel Music
3:00	John Murrell	Bomba Music: Evolution and Contextual Function
3:20	Jimmy Larowe	The Mbira of the Shona People
3:40	Spencer Burke	The Guitar, Banjo, and Fiddle: Their Power in Country Music

Detchon 211

1:10	Chris McDougal	The Growth and Decay of Venice: A Venetian Sense of the Past
1:30	William McDonough	The Divine Warriors
1:50	Chris Deig	Why the Spanish Armada of 1588 Failed: An English Delusion
2:10	Bailey Combs	Romanticism and the Civil War
2:40	Seth Marshall	Technology and the American Civil War
3:00	Thomas Logan	William McKinney: A Transcription of the Experiences of a Civil War Soldier
3:20	John Jurkash	Gangsters, Outlaws, and G-Men: The Influence on Technology on Crime and Law Enforcement from 1915 to 1930
3:40	Seth Marshall	The Evolution of Tactical Airpower in the U.S. Air Force, 1930-1953

Detchon 212

1:10	Greg Huey	Malcom X: The Making of Black Masculinity
1:30	Aaron Morton-Wilson	Imagine Something New: Secularism and Religion in Malcolm X and Rushdie
1:50	Michael Carper	St. John Hus: How a Moderate Church Reformer was Burned at the Stake for Being Radical
2:10	Andrew Kunze	A Transnational Hinduism
2:40	John Plaiss	The Role of the <i>Faqih</i> in Khomeini Politics
3:00	Adam Fein	A Defense of John Searle's Emergent Freewill
3:20	Brian Kested	The Meaning of Death
3:40	DeWayne Williams-Ray	An Education on Social Privilege

Detchon 220

1:10	Jian Ruan	To Focus or Not? A Good Way to Aid in Global Health Issues
1:30	Donovan Bisbee	Kindling a Green Fire: Aldo Leopold's Land Ethic and its Rhetorical Underpinnings
1:50	Anton Crepinsek	Volcanic Eruptions and their Environmental Effects
2:10	Stephen Batchelder	Albert Schweitzer: "Reverence For Life"
2:40	Peter Guiden	Assessment of Large Mammal Populations in Manyara Ranch (Northern Tanzania): Implications on the Viability of the Kwakuchinja Corridor
3:00	Shengshuang Zhu	Synthesis, Characterization, and Catalysis of Fe ₃ O ₄ @Au Core@Shell Nanoparticles
3:20	Yijun Tang	Levitating Water Droplets with Lasers
3:40	Peter Guiden	Effects of Stand Age and Logging History on Soil Respiration of Eastern Hardwood Forests

Schedule of Poster Presentations and Exhibits (Locations on the Following Page)

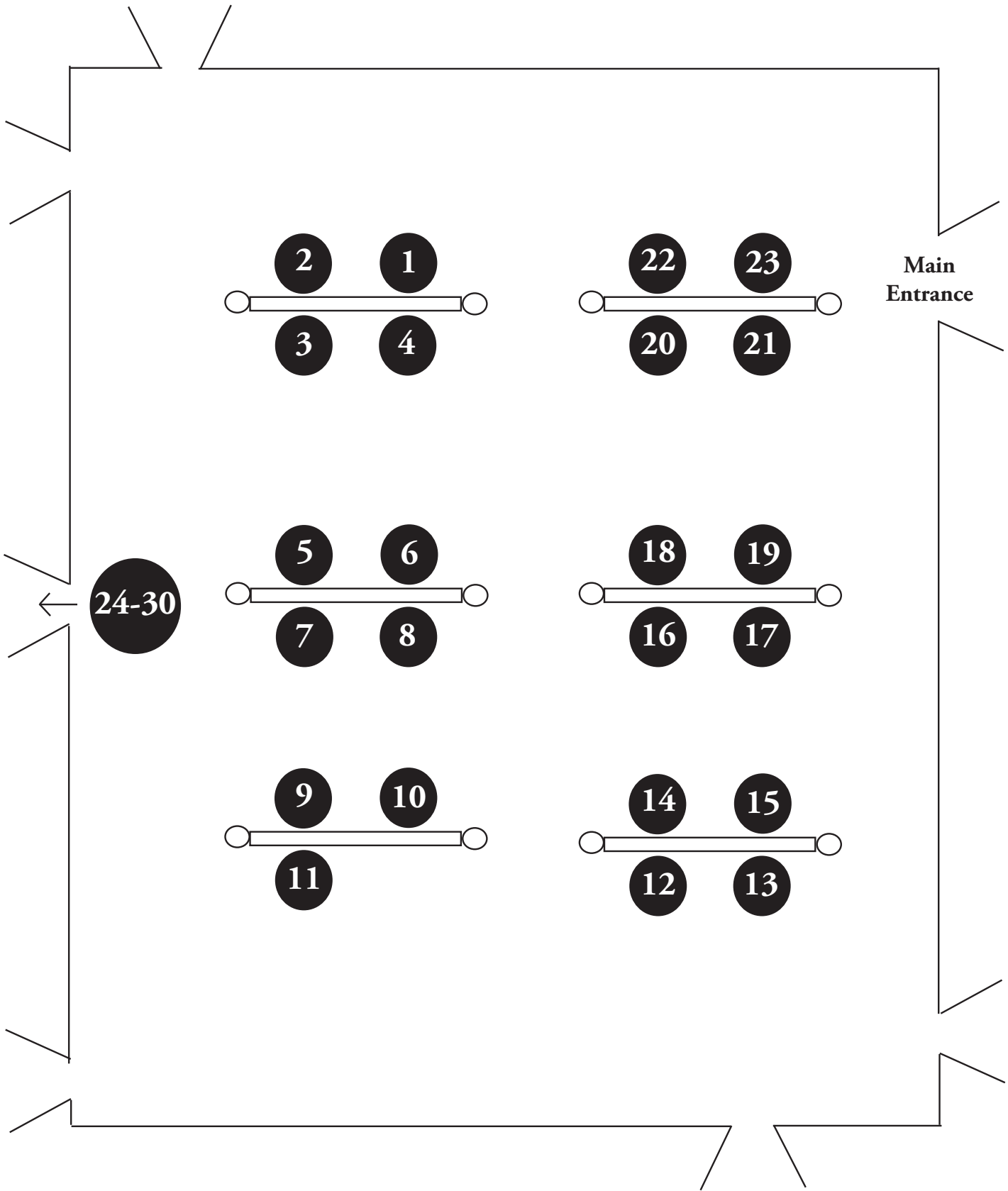
Session 1 — 1:00 p.m. to 2:30 p.m.

No	Presenters	Title
1	Evan Groninger, Yijun Tang, & Ben Foster	Chaotic Double Pendulum
3	William Costakis & Jonathan Wong	Attenuation Lengths of MoNA and LISA Detectors
5	Christopher Gorman & Derek Fritz	A Measurement of Cosmic Ray Muon Flux through Scintillator Bars
7	Bo Wang	Effects on the Isotherm Plot of DPPC-PMPC System by Different Experimental Conditions with a Langmuir Trough
9	Allan Swan	Segregation and Separation: The Aftermath of the 'Troubles'
11	Ziyun Chen	Cycles of Wage Difference from 1990 to 2009
13	Matt Schenkel	Structural and Kinetic Characterization of the Acetate Kinase from <i>Francisella tularensis</i>
15	Mike Lu & Joe Granger	Characterization of a Metal-Dependent Regulator Protein from <i>Thermobifida fusca</i>
17	Casey Wright	Worms in Worms
19	Tuan Nguyen	yhiM is Required for Acid Resistance in <i>Escherichia coli</i>
21	Mike Hegeman	Understanding the Potassium Pump of <i>Chlamydomonas reinhardtii</i>
23	Jingwei Song	Liberation Theology and its Impact on Global Health
25	Jeffrey Bohorquez	French History and Historical Memory
27	Adam Soshnick	Memory of Paris
29	Drew Casey	Faces of Photography

Session 2 — 2:30 p.m. to 4:00 p.m.

No	Presenter	Title
2	William Costakis & Logan Rice	Characterizing a Spatial Light Modulator
4	Zachary Rohrbach & Tyler Buresh	Modeling the Exit Velocity of a Compressed Air Cannon
6	Anton Crepinsek, Taylor Neal, & Austin Althoff	Bonding Organic Molecules to Silicon Surfaces: Hydrosilylation of Aldehydes onto Hydride-Terminated Porous Silicon
8	Shengshuang Zhu	The pKa of Retinal Depends On the Conformation of the β -Ionone Ring
10	Mark Osnowitz	Irregular Immigration: Public Opinion and European Union Directives
12	Michael Trevino	Regeneration of the Sea Anemone <i>Nematostella vectensis</i> Post Injury
14	Edward Evans	Expression and Purification of Cdc42 and PBD46, a Cancer-Causing Combination
16	Alan Tom & Peter Gunderman	Growth, Purification, and Crystallization of L403X Benzoylformate Decarboxylase Mutations
18	Zachary Hampton & Jimmy Beasley	Bacterial Disinfectants and the Green Dilemma
20	Drew Casey, Steven Apostolidis, Connor O'Rear & Josh Stowers	Effect of Direct Infusion of Cocaine into the Infralimbic Cortex on Habit Learning
22	Mike Hegeman	Effects of Wealth on Health
24	Rudy Altergott	"A Certain Idea of France": Learning Historical Memory in Paris
26	James Kervan	<i>Lieux de Mémoire</i> in Paris
28	Chris Widup	Historical Memory of Paris
30	Joe Reese	<i>Lamidi Olonade Fakeye: The Life of A Master Carver</i>

Detchon International Hall Poster Presentations and Exhibits



Oral Presentations (Alphabetical by Presenter)

Name: Stephen Batchelder
Sponsor: Eric Wetzel (Biology)
Title: Albert Schweitzer: "Reverence For Life"

Abstract: Is there a meaning to life? Albert Schweitzer, a German doctor, philosopher, theologian, musician, and Nobel Laureate answered this question by examining life through a philosophical and ethical lens. Schweitzer concluded that our lives do have meaning when he said, "I am a life in the midst of life that wills to live." Yet, what does this mean and how is it applicable to our lives today? Schweitzer's "universal ethic" is based in a three-part theoretical basis: thought, the optimistic and life affirming, and the ethical. Schweitzer argued that life itself requires a deep moral obligation to value all life. Schweitzer turned the focus of ethics from social structures to the individual concluding that it is imperative for an individual to have ethical and moral obligations when supporting and affirming life. This ethical commitment to life is especially important when considering our role in the light of major issues like global health and development. While philosophy and ethics may appear to have been overcome by science and economics in widespread scholarship, on some level we must still consider philosophy and ethics in order to meet the difficult political and social issues of the present day.

Name: Kyle Bender
Sponsor: Melissa Butler (Political Science)
Title: Trends within Presidential Inaugural Addresses, 1913-2008

Abstract: This research paper examines the impact the "Rhetorical Presidency" has had upon presidential inaugural addresses since 1913. By centering my research on one component, individual references, I determine there has been a shift to a stream-lined "inaugural address model" that offers few surprises. The time period examined includes twenty-five inaugural addresses, split almost evenly between parties with surprisingly similar results. I construct a model containing these references by determining the context under each mention was made, alongside a word content analysis study done by the New York Times. Additional data was also compiled from scholarly research concerning presidential rhetoric, the growth of inclusive language in speeches, and inaugural addresses. This paper challenges the assertion that inaugural addresses are merely ceremonial, but instead contain clear insight and guidance for the president's upcoming term.

Name: Donovan Bisbee
Sponsors: Jennifer Abbott & Todd McDorman (Rhetoric)
Title: "Looking for a Home Called Earth:" The Search for Home, Identity, and Survival in *Battlestar Galactica*

Abstract: Few television shows have been more actively watched, debated, or acclaimed than the 2004-2009 series *Battlestar Galactica*. The immensely popular show has been described as "a ripping sci-fi allegory of the war on terror, complete with religious fundamentalists, sleeper cells, civil-liberties crackdowns and even a prisoner-torture scandal." Despite its prominence as a cultural text, it remains largely unexplored by scholars. Utilizing the analytical lenses of Mythic Criticism and Burke's theories on Identification and Division, my analysis examines several monomyths within the show that follow the journeys of heroic Colonials in their interactions with the inhuman Cylons. I argue that these monomyths ultimately indicate that reaching common ground and approaching consubstantiality is crucial for progress in a post 9/11 society. I also consider how the journeys indicate a possible expansion of certain concepts of Mythic Criticism, showing how the monomyth can be subverted and how heroes can be a composite group rather than a single individual.

Name: Donovan Bisbee
Sponsor: Marc Hudson (English)
Title: Kindling a Green Fire: Aldo Leopold's Land Ethic and its Rhetorical Underpinnings

Abstract: The current condition of the natural world should be a cause of great concern for any informed observer of human behavior. As the human population increases, and biodiversity decreases, it becomes increasingly clear that our stewardship of nature is flawed. Aldo Leopold addressed this problem in his 1948 book, *A Sand County Almanac*. In the final pages of his book, Leopold presents the reader with his "Land Ethic," a new rubric for interacting with nature, "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." Using the tenets of Reader-Response criticism, as laid out by Louise Rosenblatt, this scholarship argues that *A Sand County Almanac* is carefully organized to guide an ideal reader to the conclusion that the "Land Ethic" is a rational, natural way of living; this chapter is the end result of careful descriptive writing which anthropomorphizes the land and animals, drawing on Pathos and Ethos to engage and persuade the reader of the value of the land ethic by creating a persona for nature which Lawrence Buell calls "nature's personhood."

Name: Spencer Burk
 Sponsor: James Makubuya (Music)
 Title: The Guitar, Banjo, and Fiddle: Their Power in Country Music

Abstract: The musical history of North America is filled with rich cultural influences and instruments. This extensive history dates back from the Native Americans and immigrant musical traditions. It goes all the way into the 1950's and 60's with diverse multiple music genres originating from Europe, Africa, and Latin America. The music has evolved through time from single-rhythm, vocally driven songs, to polyphonic, solo-based music, and everything in between. One of the major genres of North American music is that of country western. It is filled with fast tempos, yodeling, and a wide range of instrumental resources. The key instruments in country music include the use of acoustic guitar, banjo, and fiddle. Although these three are similar in playing style and structure, they vary in use. The countless sub-genres of country western were able to adapt these instruments and help change the genre as a whole. After a brief introduction of country music as a genre, the presentation will focus on how the three main instruments including the acoustic guitar, the fiddle, and the banjo, have been used throughout history. After explaining their musical and contextual function, I will conclude the presentation with an examination of their evolutionary development through time.

Name: Michael Carper
 Sponsor: Robert Royalty (Religion)
 Title: St. John Hus: How a Moderate Church Reformer was Burned at the Stake for Being Radical

Abstract: John Hus, a Catholic priest in Prague in the early 15th century, decided to protest the rampant corruption that plagued the area clergy. At the same time in Prague, the writings of John Wyclif, a controversial English theologian with unorthodox views about the Eucharist, were discovered and debated. Hus sided with some of Wyclif's teachings but not those on the Eucharist. Fellow clergy angry at Hus for replacing them as chairs at Prague University secured a papal bull preventing Hus' preaching. He attracted unfair criticism from both theological and political enemies for aligning with Wyclif. His sympathizer, King Sigismund of Hungary, called the Council of Constance, with the intention of giving Hus an opportunity to defend himself. Unfortunately, the trial's cardinals were more concerned with finding an excuse to sentence Hus to death than allow for a defense of his views, which Hus expected the trial to be. A comparison of Hus' charges and his treatise they're based on reveal a cautious reformer, one with new opinions but cognizant of their power. This was ignored by the cardinals, who burned him at the stake.

Name: Bailey Combs
 Sponsor: Tracey Salisbury (History)
 Title: Romanticism and the Civil War

Abstract: I have been interested in the Civil War since I was six years old. It started when my parents took the family to Billy Creek Village in Rockville, IN for their Civil War days. From that day forth, my family was hooked. At first it was the whole family that would go to fictional skirmishes or national anniversary events of famous battles, but the rest of my family stopped going to reenactments and just my father and I attended the national events. While at these events, one is exposed to a rather glorious image of the Civil War. The flash of black-powder musketry firing harmless blanks, the stirring post-battle speeches from proud commanders, and sitting around the campfire swapping stories about the year's past. Coming from this background, the Civil War held an image of grandeur for me. However, upon coming to Wabash College and taking my first college level course, I realized that the Civil War isn't just campfire stories and frolicking through over the fields chasing Confederates. In this presentation I plan to uncover in this research project is the difference between the Romanticized Civil War reenacting and a more unbiased, factual depiction of the Civil War.

Name: Ben Cook
 Sponsor: Betsy Knott (Business Immersion)
 Title: Treasure Bay Miniature Golf

Abstract: How many times have you heard someone moan, "There's nothing to do in Crawfordsville?" Jake Bolinger, Logan Frederick, and I worked on an answer to this complaint during the 2011 Business Immersion Program this summer: Treasure Bay Miniature Golf. We applied the knowledge we gained through reading over thirty-five business school cases, mostly from Harvard Business School, visiting businesses, and actively learning about entrepreneurship. We researched the industry, the Montgomery County market, broad trends, and competitors. We then created a business plan and presented it during the final week of the program. This presentation explores our research, marketing plan, operating plan, and financial plan for Treasure Bay.

Name: Anton Crepinsek
 Sponsors: Maureen McColgin (Biology) & Lon Porter (Chemistry)
 Title: Volcanic Eruptions and their Environmental Effects

Abstract: Volcanoes are powerful forces of destruction that elude the best attempts to fully understand and control them. While many slumber peacefully for decades,

eruptions occur in the blink of an eye, inflicting pain and destruction for miles in every direction. Because volcanoes have the potential to wreak such overwhelming havoc on the environment, it leads one to question: How can volcanoes influence their environment in other ways, and how do organisms respond to a post-eruption environment? With a basic study of the chemical make-up of volcanic ash and other components of volcanic eruptions, these questions can begin to be answered. The change in chemical make-up of the soil might in turn influence the living organisms in the regions surrounding a volcano. The ash may also impact the fertility of the soil and plant life. The environment surrounding the volcano is not limited, however, to the plant and animal life on its slopes. Human beings may also be severely affected by volcanic activity. The study of these effects will begin to peel back the mysteries that blanket these sleeping, powerful giants, and the results may leave one with a new, sobering, and chilling respect for these majestic bodies.

Name: Chris Deig
Sponsor: Stephen Morillo (History)
Title: Why the Spanish Armada of 1588 Failed:
An English Delusion

Abstract: The mid 16th century in Europe marked a time of deepening religious, political, and economic tension between Spain and England. Elizabeth I of England established Protestantism as the official English religion, supported Sir Francis Drake's privateering against Spanish vessels, and financially supported the Dutch during the Dutch Revolts. King Philip II of Spain reacted fervently to protect the Catholic faith and maintain political control of Europe by organizing the largest naval fleet ever recorded at this time. The plan was an ultimate failure for a variety of reasons, and I will describe them in detail. There are many relevant questions that shed light on this military conquest and its result such as: what was the English's perception of the victory? What were the major contributing factors that led to the Spanish defeat? Despite the English perception of having an intrinsic greatness with God's support and unprecedented military and naval prowess, the major reasons for the defeat of the Spanish Armada of 1588 were mainly logistical difficulties, poor decision making by integral Spanish leaders, depleted morale of the armada, and unsatisfactory firepower.

Name: Robert Dixon
Sponsor: Stephen Morillo (History)
Title: St. Augustine, Florida as a Mirror of
New World Imperialism

Abstract: For almost three hundred years, England and Spain fought for dominance in the New World and in Europe by building up large, powerful empires. The two nations had very different philosophies of government and different ideas of the basis of national sovereignty, and this clearly showed in the way they ran their empires. In this project, I examine one particular point on the map of the New World—the settlement of St. Augustine in East Florida—to show how it served as a miniature model of the imperial struggle between England and Spain. St. Augustine switched back and forth between England and Spain according to the fortunes of war and diplomacy, until it was finally removed from the European power struggle altogether and ceded to the United States. However, since the United States had only four decades before been a group of English colonies, it was in a way England—or at least English government and English colonialism—that had the last laugh.

Name: Kenneth Farris
Sponsor: Todd McDorman (Rhetoric)
Title: Watching a Tyrant Die: Body Politics and
the Libyan Uprising

Abstract: Western media coverage of the Libya uprising was near unanimous in its idealization of Libyan rebels during their fight against former Libyan dictator Col. Muammar Gaddafi, a result influenced by strategic placement of certain visuals in news coverage of the conflict. In this rhetorical analysis, I argue that images of former Libyan dictator Col. Muammar Gaddafi's dying body and corpse disrupted the public's idealization of Libyan rebel forces as pro-democracy, thereby casting the public's liberal-modernist view of democratic homogeneity surrounding the conflict as problematic in Libya. This conclusion stems from the public viewing of Col. Gaddafi's "about to die" moment across many media outlets as he was captured, beaten, and killed by Libyan rebel forces in October 2011. Supported by studies of the same phenomenon by rhetorical scholars Michelle Yang and Barbie Zelizer, I negotiate the civic tensions surrounding the Libyan conflict, how Col. Gaddafi's "about to die" moment serves as a locus to subverting a Western bias toward the rebel forces, and how Col. Gaddafi's "about to die" moment differs from similar moments in Yang and Zelizer's works.

Name: Adam Fein
 Sponsor: Stephen Webb (Philosophy/Religion)
 Title: A Defense of John Searle's Emergent Freewill

Abstract: The question of freewill becomes ever more pressing in today's scientific society. J. P. Moreland introduces John Searle's naturalistic approach to free will and consciousness as a comparatively "more sober" endeavor. In his argument, Searle attempts to illustrate a non-epiphenomenal, emergent consciousness that is compatible with fundamentally materialistic ideas. In this study, I defend Searle's consideration of rationality, top-down causation and analogy of consciousness to a rolling wheel against Moreland's criticism.

Name: Riley Floyd
 Sponsor: Warren Rosenberg (English)
 Title: "Could One But Seize It:" Virginia Woolf and "The Proper Stuff of Fiction"

Abstract: How should one give a talk on Virginia Woolf? We could explore her writing. We could explore the context in which it occurred. We could talk about the author herself—her life, her illness, and the astonishing record she left behind. All of these options are appealing. And none are mutually exclusive. Indeed, we can't talk about Woolf's writing without talking about Woolf. Her novels, essays, and diaries give us a fascinating glimpse of a woman keenly aware of her literary moment and ever hopeful of what her talent could audaciously explore. Woolf's preoccupation with character resulted in a unique literary oeuvre that still enraptures readers today. How people live and what they live for consumed Woolf's life—perhaps literally. This talk explores the nature of that preoccupation—its manifestation in Woolf's literature and its effect on the author herself. Woolf felt that she was writing "on the verge of one of the great ages of English literature." Now, nearly 90 years later, Woolf's fiction puts us on a verge of our own.

Name: Ian Grant
 Sponsor: Marc Hudson (English)
 Title: "Smoker's Choice" and other Poems

Abstract: I will be performing poems written independently and for English 212 over the course of the Fall 2011 semester. Along with the poems, I will present context for each poem and how I arrived at writing the poem. I will also discuss elements of style and structure as they appear in several of my poems and how those specific choices influenced the writing of the poems. "A poem is never finished, only abandoned:" lastly, I will explore how revision changes the narrative of a poem by looking at early drafts of two of my poems: "Roman Rain" and "Generation

of Scientists."

Name: Peter Guiden
 Sponsor: Amanda Ingram (Biology)
 Title: Assessment of Large Mammal Populations in Manyara Ranch (Northern Tanzania): Implications on the Viability of the Kwakuchinja Corridor

Abstract: Northern Tanzania's Manyara Ranch, within the Kwakuchinja corridor, is a relatively new conservation area between Tarangire and Lake Manyara National Parks. Within the ranch, pastoralism by local Maasai is also allowed. Since its conversion to a conservation area in 2001, few studies have been conducted within the ranch. It is therefore critical that Manyara Ranch's large mammal populations and their use of resources be assessed in order to evaluate its effectiveness as a conservation area. This study accomplished this by conducting road transect counts during the wet season. Cape eland (*Tragelaphus oryx*) and Lesser kudu (*T. imberbis*), species thought to be locally extinct in the area, were observed in the ranch. Densities of large mammals in Manyara Ranch were statistically similar in all three zones ($H=4.988$, $p=0.0674$). This study found exceptionally high densities of Common zebra within the ranch ($25.41/\text{km}^2$). Bushland and bush grassland had significantly higher species diversity ($D_s=0.7871$, 0.7622 , respectively; $t\text{-value} < 1.98$) of all habitats in the ranch. Bush grassland had the highest frequency of utilization by wildlife: 11 large mammals were observed using it more than 25% of the time. The high degree of utilization of bushland and bush grassland habitats is likely due to the diversity of resources afforded by these habitats. Biomass of wildlife was found to be significantly higher than that of livestock in all three zones ($\chi^2=30097.18$, 62712.53 , 98750.77 ; $p < 0.001$), representing a successful balance of conservation and human needs.

Name: Peter Guiden
 Sponsor: Amanda Ingram (Biology)
 Title: Effects of Stand Age and Logging History on Soil Respiration of Eastern Hardwood Forests

Abstract: Soil respiration is a key component of the carbon cycle in forest systems. Since respiration is mediated by enzymes at a cellular level, soil temperature and moisture strongly affect the rate at which this respiration is observed in nature. Furthermore, we posit that stand age and management history explain a substantial amount of the observed variation of soil respiration. This experiment took advantage of a series of eight 1ha plots, which included two of each of these conditions: Intact, Intermediate; Intact, Mature; Logged, Intermediate; Logged, Mature. Twice over the summer, CO₂ concentration and water vapor

concentration were measured at ten sites per treatment, along with soil temperature and moisture. ANOVA found soil respiration to be significantly higher in logged sites than intact sites ($p=0.044$), while no difference in soil respiration existed between intermediate and mature plots ($p=0.86$). The interaction of stand age and management history also had a significant effect on soil respiration ($p=0.0016$). The elevated rate of soil respiration in these logged plots is likely indicative of a pulse of decomposing soil organic matter due to intense logging. On the other hand, respiration of mature forest soils may be artificially suppressed due to a combination of high woody biomass and elevation.

Name: Peter Gunderman
Sponsor: Todd McDorman (Rhetoric)
Title: Waiting for Superman and Its Effect on Public Discourse

Abstract: *Waiting for Superman* is a documentary film made in 2010 and directed by David Guggenheim, who also directed *An Inconvenient Truth*. The movie has had an enormous impact on the public view of education, and has also won many awards including Best Documentary Feature at the Critics' Choice Movie Awards and the Audience Award for best documentary at the 2010 Sundance Film Festival. The film focuses on five students and follows their personal journey through the U.S. educational system. Central to the movie is the lottery system used by many charter schools to determine who gets in and who gets left out. Although *Waiting for Superman* was one of the most influential movies of 2010, it was also one of the most biased. By performing an ideological critique of the film, this presentation reveals the "anti-establishment" ideology that pervades the film. The analysis is conducted through a study of the visual and aural symbols within the film as well as exposing the film's confirmation bias. Ultimately, I conclude that the film hurts civic engagement and has a negative effect on public discourse because it misleads the American public about the state of public education.

Name: Reed Hepburn
Sponsor: Warren Rosenberg (English)
Title: Julie Taymor's *The Tempest*: Gender Deviance from Script to Screen

Abstract: When Julie Taymor's *The Tempest* was released in 2010, reviews were, at best, mixed. Many critics, not surprisingly, took issue with the casting of Helen Mirren in the role of Prospero, portraying the originally male character as a woman. One reviewer's proclamation that "...with this one change, Taymor takes away more than she can replace," was characteristic of the film's reception.

Naturally, the gender-switch has significant effect on the film. Differences extend beyond our reception of the main role and into the relationships between Prospera and other characters. But in my opinion the spirit of Shakespeare's original work is preserved. Contrary to reviewers' claims, I would submit that it is impossible for an adaptation to add anything to a work such as *The Tempest*. We should ask instead how it affects the way we appreciate the original work. I contend the gender-switch does no disservice to Shakespeare's work, but serves to emphasize the depth of the Shakespeare's brilliance by shedding light on deviance from gender norms present in the text that has been heretofore ignored. I will begin by demonstrating what I mean by this "deviance" through analyzing text then proceed to assess how they are highlighted by Taymor's film.

Name: Gregory Huey
Sponsor: Warren Rosenberg (English)
Title: Walt Disney Films and Gender Roles: Shaping the Future

Abstract: There are a lot of Disney movies I can choose from but I have decided I am going to use *Cinderella*, *Beauty and the Beast*, *Aladdin*, and *Mulan*. I think this not only covers gender issues from different time period, but different places as well. I will focus on the main female character in each of these females and discuss the gender roles they fulfill or subvert. I will also discuss how the portrayal of female characters in Disney movies has changed over time using Cinderella, Belle, Princess Jasmine, and Mulan. Over time these characters have developed independence and have followed the different waves of feminism, which in turn shapes the ideas about feminism and gender roles of society for the future because it is primarily children who watch these films.

Name: Gregory Huey
Sponsor: Tracey Salisbury (History)
Title: Malcolm X: The Making of Black Masculinity

Abstract: Malcolm X was known as many things. To some he was Malcolm X, to others he was Satan, to some he was Detroit Red, but to everyone he was a man, most importantly a black man. From Malcolm Little to Malcolm X he underwent several transitions throughout his life, all of which contributed to him being the perfect representation of black masculinity. As Ossie Davis put it, "Malcolm was our manhood, our living, black manhood! This was his meaning to his people. And, in honoring him, we honor the best in ourselves" (Ossie Davis, Malcolm X Eulogy). Malcolm X was more than just a Civil Rights leader; he was a man, a strong black man. He was, is, and always will be the very essence of black masculinity.

Name: John Jurkash
 Sponsor: Michelle Rhoades (History)
 Title: Gangsters, Outlaws, and G-Men: The Influence on Technology on Crime and Law Enforcement from 1915 to 1930

Abstract: During the 20th century, America flourished with an increase of new technological advancements. Technology was used for more than just simplifying daily life as criminals manipulated modern advances for their own beneficial purposes resulting in the Golden Age of Crime. In order to understand the importance of crime and law enforcement's evolution through technology, it is crucial to look at what specific tools were used by criminals and how law enforcement officers responded using some of the same innovations. The period of 1915 to 1930 will be focused on specifically for a concise understanding of technology's influence on crime and law enforcement in 20th century America.

Name: Brian Kested
 Sponsor: Cheryl Hughes (Philosophy)
 Title: The Meaning of Death

Abstract: In his chef-d'oeuvre *Being and Time*, 20th century philosopher Martin Heidegger explains how it is that we can view death as 'possibility' instead of as an 'actuality.' What has not yet been definitively concluded, however, is whether his description of death as 'possibility' is a distinction worthy of revolutionizing metaphysics, or if instead it is a deceptive and perverse play on words. Should we agree that *Being and Time* is "powerful and original" and that it "changed the course of philosophy?" This presentation will include a concise explication of Heidegger's account of death as 'possibility.' I will proceed to discuss a scholarly work by Heidegger critic Dr. Paul Edwards, followed by a scholarly work in response to Edwards by Heidegger sympathizer Dr. Havi Carel. However, we need not take Edwards's approach to death as philosophical dogma. Therefore, throughout this discussion I will also attempt to prove that the existential grasp of future possibilities is at stake in understanding the meaning of our own mortality. After surveying these two critiques I will conclude with several evaluative comments about the worthiness of Heidegger's distinctive description of death and, moreover, will consider how important these ideas are in our understanding of what it means for human persons to be oriented toward their own future mortality.

Name: Kris Klondaris
 Sponsor: Melissa Butler (Political Science)
 Title: NATO Intervention: The Delusion of Democratic Ideals

Abstract: In analyze NATO's level of commitment to democracy as a universal value with regard to some of NATO's major military interventions: Afghanistan; Iraq; Libya; Yugoslavia; and one notable and ongoing example: Syria. I answer the question of how NATO's commitment to democracy evolved in these different cases. Specifically, I look at how the interest-driven motives of individual member states influenced these military interventions. I conclude that NATO does not have a de facto commitment to spreading democracy, but rather only follows its normative goals at the prodding of particular member states that pursue their own interests through the interventions. I find that the democratic guise used for NATO interventions is not limited to one or even a few states; rather, it is an alarmingly widespread practice throughout the alliance.

Name: Andrew Kunze
 Sponsor: David Blix (Religion)
 Title: A Transnational Hinduism

Abstract: This project explores the various mediums through which the Swaminarayan Hindus have been supporting and connecting with their devotees living abroad: regular publications in multiple languages, online services, travels abroad, temple construction, and many other means. The study looked at support structures for devotees living anywhere outside of India, but its primary focus is on devotees living in the United States. Three major sects of Swaminarayan Hinduism, the Ahmedabad Diocese, the BAPS, and the Swaminarayan Gadi Santhsa, all have their headquarters in Ahmedabad, Gujarat; therefore, most of this study was conducted in Ahmedabad, with short trips to a sadhu-training center in Sarangpur, Gujarat and in Gandhinagar, Gujarat. Throughout the study I focused on how modern developments in Hindu practice and administration reflected the theme of Hinduism's flexibility and openness to change. However, while the institutions have been open to new technology and encouraging to its devotees abroad, a major finding of this study is that significant credit must be given to the devotees living abroad themselves for initiating the international growth of the sect. The efforts of many motivated volunteers paired with flexible and supportive administrations have helped this Hindu sect from Gujarat expand across the USA, UK, East Africa, and Australasia.

Name: Jimmy Larowe
 Sponsor: James Makubuya (Music)
 Title: The Mbira of the Shona People

Abstract: The mbira is one of the traditional musical instruments owned and used by the Shona people of Zimbabwe in Sub-Saharan Africa. My interest in the mbira came from the world music class where among other themes, we discussed the role of traditional musical instruments in the cultures to which they belong. The presentation will begin by making reference to the geographical location and musical culture to which the mbira belongs. The presentation will further discuss the whereabouts of the people that own and use the mbira. I will then proceed to clarify its classification, English descriptive name, and generic name. After briefly explaining how the mbira is built, I will then proceed to discuss the musical and contextual function of this instrument in the culture of the Shona people. The presentation will conclude with my speculation of what my research discovered to be the powerful meaning and significance of this instrument in the lives of the Shona people.

Name: Anh "Tommy" Le
 Sponsor: Christie Byun (Economics)
 Title: Predicting Smoking Behaviors of Current Smokers in the United States: Age, Race, Sex and Education

Abstract: This research seeks to investigate the impact of important socioeconomic factors including age, race, sex and education on the smoking behaviors of current smokers in the United States. The data was collected from the May 2006 Tobacco Supplement of the Current Population Survey. Multivariate OLS regression models were utilized in order to find out the relationship between these socioeconomic factors and the number of cigarettes smoked per day by current smokers, controlling for different levels of earnings, the presence of smoking policy and geographic regions. The regression result suggested a quadratic relationship between the age of smokers and the number of cigarettes consumed every day. The disparity in smoking patterns between young and old people contributed to the aforementioned quadratic relationship. The results also indicated a higher level of cigarettes consumption on average among the white population compared to the non-white population. There was, however, no evidence suggesting any impact of sex and education on current smokers' behaviors. Further studies need to be conducted to thoroughly investigate the effect of sex and education on people's smoking patterns suggested by past empirical studies. This can be achieved by improving the data generating process and including better controlling variables in future regressions.

Name: Wyatt Lewis
 Sponsor: Agata Szczeszak-Brewer (English)
 Title: Desiderio: The Postcolonial Narrative of a Fractured Self

Abstract: Angela Carter's *The Infernal Desire Machines of Dr. Hoffman* describes a war between the forces of Reason and Desire by placing the protagonist Desiderio in the midst of the battle. However, both Desiderio's psychological state and decisions are continually shown to be inevitable by-products of his ethnic hybridity—Desiderio's story is not the story of a human fated to choose between the conflicting forces of Reason and Desire, but of a victimized individual struggling to forge an identity that reconciles his Indian heritage with his European upbringing. Wishing to escape the "otherness" imposed upon him by his Westernized society, Desiderio finds himself on the fringes of both European and Indian society and unable to fully identify with either. Disillusioned and cynical, Desiderio explores various possibilities of "self," testing and exploring the boundaries of class, gender, and ethnicity. Desiderio's search for an identity also manifests on a subconscious level through his desire to find a surrogate father figure. However, despite all of his efforts, Desiderio's search ends in vain, and he resigns himself to playing the role of "posterity's prostitute."

Name: Wyatt Lewis
 Sponsor: Warren Rosenberg (English)
 Title: Michael Corleone: Traditional Masculinity as Puppeteer

Abstract: *The Godfather* trilogy is famous for its examination of the American Dream, but it also provides a fascinating glimpse into the nature of masculinity by allowing the viewer to see how Michael's slow rise to power and eventual role as "Godfather" directly relate to his masculinity. In particular, the trilogy offers two contrasting views of masculinity: the Romanticized male essence characterized by the mythic figure of Vito and a progressive definition of masculinity that defines masculine gender behavior as performance and cultural construct. These two conflicting theories reside together in all three movies, and Michael's struggle to define his masculinity is a struggle to choose between them, until the final installment eventually deconstructs the former definition of masculinity as a falsehood. This struggle partly explains the vast popularity of the movies. Although the first two movies do offer a critique of a Romanticized "essence," the critique is much more subtle and the Romanticized masculinities presented are appealing to a wide range of audiences; however, the third movie offers a more blatant deconstruction of Michael's masculinity, unmasking it as performative, which helps explain viewer distaste for *Part III*.

Name: Yangnan Liu
 Sponsor: Betsy Knott (Business Immersion)
 Title: Game On: How Marketers Integrate Gaming Dynamics in Strategy

Abstract: With the emergence of social media and social gaming, marketing has been extended to mobile and social media platforms. During my strategy internship with DDB Worldwide, I did an extensive research on how social gaming and social media changed the marketing industry in recent years. This presentation outlines the economic and psychological perspective of how gaming dynamics work in marketing and includes several very interesting successful examples from famous brands.

Name: Thomas Logan
 Sponsor: Michelle Rhoades (History)
 Title: William McKinney: A Transcription of the Experiences of a Civil War Soldier

Abstract: The presentation I have prepared examines and expands upon the experiences of the common Civil War soldier. In order to obtain this information, I have prepared a transcription of a war-era journal, written by William M. McKinney. I found this journal in our very own archives, and having never been transcribed, very few could know its contents. According to the Wabash College Magazine, McKinney was a member of the Wabash class of 1859, enlisted in the war movement in June of 1861, and died of Tuberculosis in 1864. For this, I transcribed the first eight months of his service, as he fought through extreme illness and enemies in the mountains of West Virginia. The primary themes I observed and expanded on in my essay were: an explanation of why men fought in the war, Illness and injury, the presence of religion in camps, the effects of mountainous terrain on the average soldier, and the lasting effects of the Civil War on men like McKinney. This transcription is an important part of the history of Wabash College, not only because McKinney is a fellow Wally, but also because much of what the author describes disagrees with commonly accepted historical beliefs.

Name: Seth Marshall
 Sponsor: Tracey Salisbury (History)
 Title: Technology and the American Civil War

Abstract: The Civil War was the first war in military history that can truly be considered a modern war. Technology helped to make the Civil War the deadliest conflict in American history. Technologies such as the telegraph, the ironclad, the balloon, and the submarine not only made the Civil War a bloody war, but a revolutionary one. The technologies stated above were just a few that saw their first use during that four-year period, and ultimately have

left a deep impact on the ways in which future wars would be fought. My presentation will seek to define the role of these technologies in the American Civil War- how they were developed, how they were used in the war, and what was their impact not only on the war but upon military history. I will also discuss what factors made the Civil War a modern conflict and what separated it from earlier wars that have been labeled modern.

Name: Seth Marshall
 Sponsor: Richard Warner (History)
 Title: The Evolution of Tactical Airpower in the U.S. Air Force, 1930-1953

Abstract: While strategic bombing has been a frequent subject of study for military historians, far less written about is the topic of tactical airpower, the realm of airpower which involves the attacking of enemy ground forces by aircraft behind enemy lines as well as directly over the battlefield. However, within the span of twenty-three years, tactical airpower became a highly potent form of modern warfare that has proven invaluable to today's armies. My presentation will examine the origins of this little-studied branch of aerial warfare that was initially viewed with disdain by airpower theorists, as well as tactical aviation's highly successful use in World War II and the Korean War. I will also discuss what made tactical airpower a successful form of warfare as well as the difficulties encountered by advocates of this type of aviation. There will also be focus placed on the historiography of this subject.

Name: William McDonough
 Sponsor: Richard Warner (History)
 Title: The Divine Warriors

Abstract: In the European and America Christian mind set, there is a deeply rooted idea of a "holy warrior." This idea is not new nor, is it purely a fantasy concept. The historical events and historical memory of the warriors and ideas have evolved from the Medieval Period to influence popular culture and our minds. The various ideologies, images, themes, symbols are based upon a developed history of an ethos and mythos of "holy warrior," which is not limited to video games, but appear in other aspects of our culture. Movies like Equilibrium use "holy warrior" terminology invoke a certain concept and an idea. This research is an exploration to what the Euro-America concept of "holy warriors" are through analyzing the historical realities of warrior saints, the military monastic orders, ideas from the crusades, and examining present day ethos in videos games and movies.

Name: Chris McDougal
 Sponsor: Stephen Morillo (History)
 Title: The Growth and Decay of Venice:
 A Venetian Sense of the Past

Abstract: My project is in the form of a twenty-five page paper that I gave a speech on for my Maritime History class. The presentation will feature a brief look at some of the maritime events which led to the growth and prosperity of the City State of Venice in the 11th and 12th centuries. I will also talk about some of the maritime events which led to Venice's decay beginning in the 15th century. The bulk of my presentation will be an examination and interpretation of Venetian works of art during its decline in order to get a better understanding of how the Venetians saw themselves in the face of decay. Several works of art and some poetry will be critiqued in order to gain a better understanding of the Venetian sense of the past. My findings indicate a Venetian sense of time that stresses that time itself is natural and that all things are eventually taken over by it. The artwork also suggests that the Venetian artists have preserved the old prosperous Venice by depicting their architecture in a way that makes it immortal; so the city lives on through its art and architecture.

Name: Geoffrey McKinney
 Sponsors: Dwight Watson & James Cherry (Theater)
 Title: Modern Theories of Story Formation

Abstract: Aristotle gave the first detailed analysis of story structure in *The Poetics*. Since Aristotle's realization of how to convey tales in an interesting and meaningful way much has changed. What exactly is the current state of story formation in the modern world? Two modern methods for forming modern day film narratives have emerged over the past two decades. Robert McKee, instructor and author, details the guidelines needed for writing for a modern day audience in his book *Story: Substance, Structure, Style and the Principles of Screenwriting*. Another text provides a rigid guideline which tries to account for all of the possibilities needed for modern day story construction. This book is *Dramatica* by Melanie Anne Phillips and Chris Huntley. Both of these texts provide their own theories explaining modern story forming trends.

Name: Adam Miller
 Sponsor: Todd McDorman (Rhetoric)
 Title: Applying Rhetoric to Change Lives:
 My Plans to Start a Non-Profit Organization

Abstract: This presentation will briefly outline the work of my Rhetoric 497 senior project, a rhetorical analysis of the soccer documentary *Kicking It*. However, the majority of the time will be spent discussing my plans to start a non-

profit organization upon graduation. My rhetorical analysis of *Kicking It* uses Pentadic criticism to critique how the documentary film constructs the Homeless World Cup as a catalyst to encourage homeless people to transform their lives. I will then extend this theme of using sports to change lives to explain my non-profit aspirations, which involves providing sports equipment to underprivileged children. In fall 2011 I was awarded a grant to attend the inaugural SXSW Eco conference in Austin, Texas to help with my essay and non-profit research. Thus this presentation will combine classwork (the implications from my senior seminar essay) with real world experiences in outlining my plans for a non-profit organization.

Name: Aaron Morton-Wilson
 Sponsor: Agata Szczeszak-Brewer (English)
 Title: Imagine Something New: Secularism and Religion in Malcolm X and Rushdie

Abstract: Few people have challenged human beings to think for themselves as much as Malcolm X and Salman Rushdie. Although Malcolm X is a Muslim, and Salman Rushdie is a secularist, both of these individuals have produced volumes of work that handle the issue of self-definition and self-direction. By examining a few of these works closely, focusing on the themes of religion and activism, I have observed that there are some similarities between Malcolm X and Salman Rushdie. They both are focused a strong desire to imagine a new form of identity that will free people from control and manipulation by those in power. Despite resisting different groups, both of these individuals are masters of using identity and their awareness of the political and historical environment of the world to overcome this control. In both cases these individuals overcome religious and societal control. The interplay of religious ideology and secular action that runs between these works is fascinating, and prompts one to ask: "How does Malcolm X's way of being religious relate to Rushdie's idea of imagining something new?"

Name: Ian Muller
 Sponsor: Alexandra Hoerl (Political Science)
 Title: Tristan and Nietzsche: The Reevaluation of Love through Subjectivity

Abstract: One crucial element of a well-functioning society is stability. If the family is the basic unit of society, then stability in the family is also essential. However, modern culture presents relationships in a problematic way. I postulate that there is an improper perception of love based upon the Courtly Love paradigm that causes inconstancy in love. This Courtly Love paradigm creates unrealistic expectations of love, and plants a false image of how a relationship should function in our minds. Modern culture

is rife with examples like *The Princess Bride*, *Twilight*, and a vast majority of so-called chick-flicks. As a society, we must reevaluate our conception of love; I propose a system based upon Friedrich Nietzsche's writings on love and friendship. Nietzschean friendship-love requires subjectivity of the participants, which traditionally is considered to be inimical to society. However, subjectivity in love provides a healthy, stable alternative to the Courtly Love paradigm. Subjective individuals are capable of functioning in society despite society's need to assert itself against the individual because a truly subjective individual will see past society's false objectivities. This stable individual is able to contribute and lead to a stable society.

Name: John Murrell
 Sponsor: James Makubuya (Music)
 Title: Bomba Music: Evolution and Contextual Function

Abstract: Bomba is a style of music that migrated from West Africa to Puerto Rico through slave trade in the late 18th, early 19th centuries. It eventually became a national staple in the rich musical culture of Puerto Rico. Political and social circumstances instigated a large growth of the Puerto Rican population in the United States, specifically New York, and with these people came bomba. In addition to Puerto Ricans continuing their traditional musical practices in a new land, the popularity of bomba artists helped gain the music international recognition. Over the last 300 years, bomba has managed to survive slavery, racism, acculturation, stylistic fusion, cultural oppression, and identity crisis. Through all of the controversy and change, it remained a means of self-expression and cultural identity for those who needed it most. After a brief introductory analysis of the bomba style, through the discussion and analysis of the social, musical, and cultural functions it serves and changes it has endured, this presentation will examine the evolution and contextual function of this bomba style. It will then conclude by evaluating the effects of the political/cultural significance bomba has made from the tribal lands of West Africa to the streets of Spanish Harlem.

Name: John Plaiss
 Sponsor: David Blix (Religion)
 Title: The Role of the Faqih in Khomeini Politics

Abstract: A *faqih* is one who has mastered Islamic jurisprudence. He is well schooled in Sharia law and is well versed in *The Qur'an*. Throughout Islamic history, tensions have risen in the *umma* (the Islamic community) as to how much power the *faqih* can have. In 1970 the Ayatollah Khomeini, Islamic revolutionary and Supreme Leader of Iran, published Islamic Government, arguing

that the *faqih* should have complete control over the country. By purporting that the *faqih* are the spiritual and intellectual descendants of, not only the *Mahdi*, but the Prophet Muhammad himself, Khomeini set himself and his friends up for absolute rule. In my presentation I will analyze the how the *faqih* acquire their status, what they are to do with their position, and how the people are supposed to react to their leadership. I will also question the validity of Khomeini's theories by placing them in a 2011 (2012) context. Can modern day scholars of Islamic law like Reza Aslan or Zuhdi Jasser be considered *faqih* under Khomeini's ideas? Why or why not?

Name: Jordan Plohr
 Sponsors: Dwight Watson & James Cherry (Theater)
 Title: Making Meaning in Contemporary Theatre Architecture

Abstract: The architecture and design of theatres has evolved a great deal from the amphitheaters of ancient Greece. Through these stages of development, the physical structure of the theatre has taken on many forms. Similarly, the meaning of those buildings has also changed; Contemporary theatre architecture represents something, culturally and aesthetically, beyond the work performed there. It can be said that the theatre building itself is a player in every act, how do they accomplish this? How do theatres develop this meaning and what does that mean for a play in performance? How do theatres operate as collaborators in the urban landscape? The answers to these questions lie in the theatres themselves. By exploring buildings such as the Wily Theatre in Dallas and the DePaul Theatre School in Chicago, we can begin to see how contemporary theatres, their design, location in the urban landscape, and functionality, create meaning in a modern context.

Name: Joe Reese
 Sponsors: Dwight Watson & Michael Abbott (Theater)
 Title: *Alpha Echo Three*: An Original Screenplay by Joe Reese '12

Abstract: Joe Reese will demonstrate how a story develops throughout the writing process, through the use of his original screenplay, *Alpha Echo Three*. This screenplay is an action story, with a Biblical message. It is a fictitious tale of two spies, one wife, and their journey home. The process by which a writer creates a story is full of revision and change. When a person writes a screenplay, that person will often not sit down, write the story, and then submit it straightaway. During the writing process, to enhance the quality of the story, it is important to examine the story through different lenses, such as: character development, plot, and theme. *Alpha Echo Three* did not begin as a story

about spies or even that of someone running from the police. In fact, the only part of the story that remained from even the second draft until the current draft is, a couple making their way through the woods. This presentation will share the writing process, from which *Alpha Echo Three* was crafted, clips from the screenplay, and a storyboard. Joe thanks the Wabash College Theater Department for their support and sponsorship.

Name: Jian Ruan
Sponsor: Eric Wetzel (Biology)
Title: To Focus or Not? A Good Way to Aid
in Global Health Issues

Abstract: Global health issues are constantly in the headlines of newspapers and magazines. Billions of dollars and millions of people are involved every year. No matter which perspective you choose to view global health issues—humanity, ethics, politics or business—it is undeniable that the influence of every decision on global health issues is strong enough to change the use of taxpayers' money and the lives in poor countries. The methodology of aid organizations, which includes how to distribute money and why, is not surprisingly one of the core concerns in global health topics. Since rich individuals and countries are the main sources of financial aid, conflicts over the benefits of aid are hindering wide collaboration. Therefore, aid activities are usually organized by independent organizations and they only focus on one certain area or a particular disease. To maximize the influence of aid organizations, some claim that the limits of disease-specific money should be broken and used to cover more beneficial areas. I would like to present a new idea – what I am calling area-specific aid -- in which I try to avoid the potential problems of non-disease-specific aid and solve some problems of disease-specific aid.

Name: Reginald Steele
Sponsor: Peter Hulen (Music)
Title: From Negro Spirituals to Black Gospel Music

Abstract: There is a musical tradition that held together a body of people when oppression struck beginning in the seventeenth century, tragedy for a race that was sold off one by one, separating families across the world. This tradition became a central form of communication between people of African descent during the time of slavery. Though it began and has continued in religious settings, it is not limited to that context. This tradition has worked its way through history, and in more recent times has supported activists, protesters, and the constituents of their communities. It evolved over generations, its distinctive qualities emerging in various periods. Through it, feelings have been expressed, lives have been changed

for the better, and the world has experienced an art form that, while partially relying on talent, mainly expresses the experience of living through oppression. This musical tradition is dear to the Black community, and is a personal inspiration in my studies and daily journey through life. It is that of Negro Spirituals, and can be identified today as Black Gospel Music.

Name: Yijun Tang
Sponsor: Cheng Chin (Univ. of Chicago)
Title: Levitating Water Droplets with Lasers

Abstract: Optical levitation is a technique whereby micron-sized particles are levitated by the radiation pressure of laser beams. It finds important applications in aerosol studies and light scattering experiments. In a typical optical levitation experiment with liquid droplets, a mist of droplets is introduced to the vicinity of a laser beam, and one or few droplets will drift into the trapping region. However, with this method, one cannot control the size and number of trapped droplets. As an alternative, we present an apparatus that can generate single uniform-sized water droplet (50 um in diameter) and deliver it into a laser beam in a deterministic manner. The cleanness of our apparatus allows high-magnification imaging of levitated droplets. The measured motions of trapped droplets are in agreement with radiation force calculations.

Name: Scott Walker
Sponsor: Warren Rosenberg (English)
Title: “A Generation of Men Raised by Women:”
A New Perspective on Male Gender Identity
in Chuck Palahniuk’s *Fight Club*

Abstract: Chuck Palahniuk’s 1996 novel *Fight Club* has been the topic of a large amount of scholarship since it was published. The novel and subsequent film (directed by David Fincher, 1999) suggests that men have been raised in a post-modern, post-feminist society that has in many ways emasculated the traditional male identity. In order to regain their masculinity and find some relief from their gender identity confusion, these men embrace a very violent and anarchic campaign to “liberate” both themselves and modern society. Some critics see this as a misogynistic and regressive tale that is damaging to men, filling them with false idealism and glorifying violence as an answer to their confusion and frustration. I, however, posit that the author’s intention is to show men that there is danger in hypermasculinity, but also in complete effeminacy. By examining the three main male characters in the novel and film, I will demonstrate how the author is showing that there is a reconciliation between the two extremes, and this should be sought. In addition, I will show how the author also is inciting the audience to find its own version

of masculinity, not relying on out-dated or culturally constructed visions of masculinity.

Name: Wesley "DeWayne" Williams-Ray
Sponsor: Tracey Salisbury (History)
Title: An Education on Social Privilege

Abstract: I will give a PowerPoint presentation on the concepts of social privilege, based off of research I have obtained from various philosophical and sociological authors.

Name: Michael Wright
Sponsor: Agata Szczeszak-Brewer (English)
Title: "What Makes a Man?" A Gender Analysis of the Coen Brothers' *The Big Lebowski*

Abstract: The Coen Brothers' film, *The Big Lebowski*, is a comedy that has become a widely popular example of American cinema. It focuses primarily on Jeff "The Dude" Lebowski and his friend and bowling partner, Walter Sobchak, as they attempt to seek restitution for the Dude's soiled rug. Things become complicated when they find themselves recruited to rescue a "kidnapped" trophy wife. While on the surface, *The Big Lebowski* appears to be an obscenity addled film about two friends who enjoy bowling, this movie comments on the importance and varying perceptions of masculinity in the modern world. The Dude is cool, relaxed, and emotionally detached. Walter, on the other hand, is aggressive and assertive. These personalities differ considerably, yet both of these characters represent competing ideals of masculinity. This presentation analyzes both of these stereotypes in the context of 1990's Los Angeles, where the traditional ideals of masculinity appear to have declined. What is *The Big Lebowski* saying about varying aspects of masculinity and their applications? Whose methods are more appropriate? Is there even a place in the modern world for traditional masculinity?

Name: Shengshuang Zhu
Sponsor: Steven Overbury (ORNL)
Title: Synthesis, Characterization, and Catalysis of Fe₃O₄@Au Core@Shell Nanoparticles

Abstract: In this work, we present a detailed study of developing Fe₃O₄@Au core@shell nanoparticles as catalysts for CO oxidation. Fe₃O₄@Au core@shell nanoparticles were synthesized by the deposition and coalescence of Au onto the surface of Fe₃O₄ nanoparticles with the desired sizes. The Au shell thickness was varied by controlling the molar ratio between Fe₃O₄ and Au. Using the colloidal deposition method, SiO₂ and TiO₂

supported Fe₃O₄@Au catalysts were prepared. The core@shell nanoparticles were characterized by bright field TEM, EELS mapping, XRD, and UV-vis. UV-vis spectroscopy suggests a core-shell interaction between the Au shell and Fe₃O₄ core. Catalytic tests clearly show that the Fe₃O₄@Au catalysts have higher activity than Au/SiO₂ catalysts and the Au shell thickness of the Fe₃O₄@Au catalysts strongly correlates to their catalytic activity. Unlike any conventional research results, the TiO₂ support does not seem to enhance the catalytic activity of Fe₃O₄@Au catalysts, and in one case, TiO₂ supported Fe₃O₄@Au catalysts even show lower activity than the SiO₂ supported one. Using this synthetic route and characterization method, the catalysts show good high-temperature stability, uniform size, and high activity in CO oxidation.

Posters Presentations and Exhibits (Alphabetical by Primary Presenter)

Poster #24

Name: Rudy Altergott
 Sponsor: Michelle Rhoades (History)
 Title: "A Certain Idea of France:" Learning Historical Memory in Paris

Abstract: In his *General Introduction of Rethinking France* (2001), Pierre Nora, one of the foremost authorities on historical memory, includes a quote from the memoirs of General Charles de Gaulle, in which the general described what he called "a certain idea of France". Nora called this "a brilliant expression... open to all possible interpretations" (Nora, 2001). My poster is an attempt to emulate my personal interpretation of what I saw and what I learned about historical memory during my immersion trip to Paris, France. Armed with a disposable camera, I was given the task of choosing 27 photos to document what "realms of memory" (or *lieux de memoire*, as Pierre Nora calls them) I deemed important. Little did I know then that, through the assignment, I would be creating my own kind of historical memory. While a considerable part of my poster is dedicated to locations related to my research of the historical memory of French Algeria, it also is comprised of other "*lieux*," including souvenirs from some of the museums and places among them. Through my poster, I hope to educate those who will listen about what historical memory is and how relevant a concept it is to understand.

Poster #25

Name: Jeffrey Bohorquez
 Sponsor: Michelle Rhoades (History)
 Title: French History and Historical Memory

Abstract: These pictures show different *lieux de memoire*. One thing that they all have in common is that they show the importance that people still give to these monuments today. Although, the primary meaning and significance of many of these sites has changed, they now hold a new meaning for the French citizens, which gives these sites the characteristics of a, lieu de memoire. Pierre Nora argues that "*lieu de memoire* thrive only to because of their capacity for change, their ability to resurrect old meanings and generate new ones along with new and unforeseen connections." If it wasn't because these sites and places have the capability to change, they would have never become *lieux de memoire*. After analyzing the new and old meanings of the *lieux de memoire* in these pictures, I developed my own opinion about the lieux de memoire. In my opinion, if we examine these sites in a modern societal context, we will see that these *lieux de memoire* have become nothing but an attraction to the public. In other words, these sites have become recreational. People do not

recognize these sites for what they individually represent, rather they view them as national French icons.

Poster #20

Names: Drew Casey, Connor O'Rear, Josh Stowers, and Steven Apostolidis
 Sponsor: Neil Schmitzer-Torbert (Psychology)
 Title: Effect of Direct Infusion of Cocaine into the Infralimbic Cortex on Habit Learning

Abstract: Our recent studies showed that lesion to infralimbic cortex can disrupt habitual behaviors produced by post-training cocaine injection. Based on these results, our present study tested the effect of direct infusion of cocaine into the infralimbic cortex after receiving training on an instrumental task. In the study, all sixteen rats were given injections through a dual cannula directly into the infralimbic cortex. All rats were put on food restriction in order to achieve roughly 80% of original body weight. After this desired weight was achieved the rats were given both magazine and three lever press sessions in order to train them. During lever press training rats received either sucrose pellets or food pellets as rewards. After ample training the rats were given several sessions where they would receive a post training cannula infusion of either saline (sham) or cocaine directly into the infralimbic cortex. An extinction session was then performed to examine the effect of said infusions. The results showed a trend for behaviors that were paired with cocaine infusions to be habitual, while behaviors paired with sham infusions remained goal-directed. This suggests that the direct infusions of cocaine into the infralimbic cortex can produce habitual behavior.

Poster #29

Name: Drew Casey
 Sponsor: Douglas Calisch (Art)
 Title: Faces of Photography

Abstract: The motivation behind this project was provided by a Wabash professor who viewed my work and stated: "it's been done before." Before this oversimplified phrase, the material I shot seemed to be limited to what had always been effective in the past. This professor's words evoked a significant emotional response in me. Not only had he embarrassed me in front of peers, but he was right. So I went hunting for something new and happened upon an unexpected solution: Go to Walmart! Walmart presents a perfect environment filled with a number of unorthodox ideas. In this case an idea sparked when a roommate decided to make faces at me through a glass cutting board

in the cooking section. His face looked hideous, but it was perfect. I bought a variety of different glassware with the intentions of turning them into makeshift lenses. I stacked Styrofoam cups with the bottoms cut out to hold the glassware securely over the actual lens of my camera. The photos taken were a little bizarre but they had never “been done before,” and they were fun to take. Sometimes harsh criticism is the prompt that is least expected but much needed.

Poster #11

Name: Ziyun Chen
Sponsor: Joyce Burnette (Economics)
Title: Cycles of Wage Difference from 1990 to 2009

Abstract: This research examines the hypothesis that wage discrimination against black workers is counter-cyclical with data on hourly wages from IPMUS-CPS data set from 1990 to 2009. A few empirical studies investigated the changes in discrimination throughout business cycles. However, none of them found evidence on the counter cyclical tendencies of black wage discrimination. In contrast to these empirical studies, I used GDP growth rate rather than the traditional indicator unemployment rate to capture the business cycles. At first, I test for the counter-cyclical tendencies with regressions on wage ratios. I find the wage ratio declines in recessions and rises in recoveries. Nevertheless, the correlation goes away when I use black coefficients to see if the real wage discrimination is also affected. Further investigations could not spot the characteristics that is affecting the wage difference through business cycles.

Poster #2

Names: William Costakis and Logan Rice
Sponsor: Martin Madsen (Physics)
Title: Characterizing a Spatial Light Modulator

Abstract: We analyzed the high-speed footages of a double-pendulum using custom written video analysis software. The measured two normal frequencies of small angle oscillation are $\omega_1 = 4.841 \pm 0.042$ rad/s (95% CI) and $\omega_2 = 12.949 \pm 0.005$ rad/s (95% CI). Phase plots of large-angle chaotic motions were obtained. We present the preliminary measurements of the double-pendulum's Poincare section. The Lyapunov exponents of this system are still under investigation.

Poster #6

Names: Anton Crepinsek, Taylor Neal, and Austin Althoff
Sponsor: Lon Porter (Chemistry)
Title: Bonding Organic Molecules to Silicon Surfaces: Hydrosilylation of Aldehydes onto Hydride-Terminated Porous Silicon

Abstract: Porous silicon (por-Si) is a useful substrate for applications ranging from chemical sensors to drug delivery. While there are many functionalization methods currently available, their relative ability to protect the underlying surface is not well documented. Previous work in our lab has explored the bonding of organic monolayers on por-Si via the hydrosilylation of primary olefins. In this project, we have adapted benchtop methodologies to functionalize por-Si using aldehydes. Aliphatic aldehydes provided more durable monolayers than phenyl-terminated coatings. For both olefins and aldehydes, molecules bound via thermal- and microwave-facilitated hydrosilylation pathways resulted in greater yields and exhibited greater stability when exposed to pH 14 solution at room temperature. The thermal hydrosilylation reaction produced monolayers that exhibited the greatest resistance to degradation. Evidence of this initial progress is provided primarily through characterization of surfaces via transmission mode Fourier transform infrared spectroscopy (FTIR).

Poster #14

Name: Edward Evans
Sponsor: Ann Taylor (Chemistry)
Title: Expression and Purification of Cdc42 and PBD46, a Cancer-Causing Combination

Abstract: The Ras superfamily consists of low molecular weight G-proteins that are heavily involved in cellular signaling, leading to various downstream responses. Like other Ras proteins, Cdc42 acts as a molecular switch interchanging from its active (GTP-bound) and inactive (GDP-bound) state through the utilization of GAP (GTPase-activating proteins) and GEF (guanine nucleotide exchange factors) effectors. It has been shown that Cdc42 signaling pathways play a major role in cell proliferation and differentiation, leading to tumor growth. PBD46 is an effector of Cdc42 proven to inhibit GTP hydrolysis, stabilizing the Ras protein in its active state. PBD46, as well as many other effectors, bind to the Switch I region (amino acids 28-40) of Cdc42. Threonine of position 35 was replaced with alanine forming a Cdc42 mutant. With the use of affinity column chromatography, Cdc42(WT), Cdc42(T35A), and PBD46 were expressed and purified for future tests of the Switch I binding interface.

Poster #5

Names: Christopher Gorman and Derek Fritz
 Sponsor: Martin Madsen (Physics)
 Title: A Measurement of Cosmic Ray Muon Flux through Scintillator Bars

Abstract: The object of our experiment was to determine if the anomalous data point found in a previous experiment was caused by a neutron-rich source in a room nearby. We used directionally sensitive scintillating detectors to measure the intensity of the flux as a function of the azimuthal angle. We compared our data to the accepted background to determine the location of a neutron-rich source. The results of our experiment are inconclusive; either our apparatus did not line up with the neutron source, or the source is not the cause of the anomalous data point.

Poster #1

Names: Evan Groninger, Yijun Tang, and Ben Foster
 Sponsor: Martin Madsen (Physics)
 Title: Chaotic Double Pendulum

Abstract: We analyzed the high-speed footages of a double-pendulum using custom written video analysis software. The measured two normal frequencies of small angle oscillation are $\omega_1 = 4.841 \pm 0.042$ rad/s (95% CI) and $\omega_2 = 12.949 \pm 0.005$ rad/s (95% CI). Phase plots of large-angle chaotic motions were obtained. We present the preliminary measurements of the double-pendulum's Poincare section. The Lyapunov exponents of this system are still under investigation.

Poster #18

Names: Zachary Hampton and Jimmy Beasley
 Sponsor: Rebecca Sparks-Thissen (Biology)
 Title: Bacterial Disinfectants and the Green Dilemma

Abstract: Disinfectants play an important role in controlling infection. Many of these disinfectants contain harsh, environmentally hazardous chemicals. However, more recently, many companies have been looking at "green" products that use "natural" ingredients to disinfect. We tested to see how these products disinfected and whether the "green" products were comparably effective. We tested antibacterial properties of Lysol Brand I and Brand III, Clorox Sanitizer, Spic & Span, Clorox Green Works, and Seventh Generation, and 10% bleach against *E. coli*, *Salmonella*, *P. vulgaris*, *S. marcescens*, *S. epidemics*, *S. aureus*, *N. sicca*, *B. megaterium*, and *B. cereus*. After using a disk diffusion assay to test disinfectant ability, we found that even harsh chemicals such as benzalkonium chloride

and other branched ammonium chlorides do not disinfect as well as 10% bleach solution. Furthermore, the green products performed significantly worse in comparison to the cleaners containing the ammonium chlorides. Our results suggest that this may be due to the structure and shape of the bacteria, with gram positive spheres showing the highest sensitivity to the disinfecting agents.

Poster #21

Name: Mike Hegeman
 Sponsor: David Polley (Biology)
 Title: Understanding the Potassium Pump of *Chlamydomonas reinhardtii*

Abstract: *Chlamydomonas reinhardtii* is a single celled algae that is known to have a potassium pump that works similarly to many plants. One gene that has been shown to be involved in potassium transport the TRK gene. To determine where in the genome TRK is located, a gene for Arginine was inserted into the genome using electroporation. The resulting cells were then plated on cultures without Arginine and with either high or low potassium levels. Cells that could live on the high levels of potassium but on the low levels of potassium were grown up to be used in future experiments. The other experiment I worked on involved engineering a gene that could be used to find the exact location of the TRK gene in the *Chlamydomonas* genome.

Poster #22

Name: Mike Hegeman
 Sponsor: Eric Wetzel (Biology)
 Title: Effects of Wealth on Health

Abstract: In the late 1800's, the developed world began to see an increase in life expectancy that has continued ever since then. There has been a similar pattern for nearly all countries since then in getting better life expectancy. The pattern follows three stages, first better nutrition, then better public health, and finally better medical care, which are all dependent somewhat on income. However, it appears that after a certain income, the overall health depends on more factors. Costa Rica and the United States are compared to see what factors make for a better well being without raising the cost of health care too much.

Poster #26

Name: James Kervan
 Sponsor: Michelle Rhoades (History)
 Title: *Lieux de Mémoire* in Paris

Abstract: My poster will demonstrate the concept of historical memory through sites of memory. *Lieux de Mémoire* can be viewed as symbols used to give a “history of France through memory.” Nora is attempting to use these pure symbols in order to “look beyond the historical reality to discover the symbolic reality and recover the memory that is sustained.” In our immersion trip to Paris we were given the task of taking pictures with a disposable camera. The pictures on this board are part of the representation of my memories of Paris. I will present pictures from my trip and relate them to this philosophy and explain their significance to this concept. These pictures represent the memories I have made in my visit to Paris. While these memories will evolve as I continue to have new experiences and their memories will combine and morph. But as they change my memory of Paris will remain and while different than it is currently these pictures will be a constant reminder of the city on the Seine.

Poster #15

Names: Mike Lu and Joe Granger
 Sponsor: Walter Novak (Chemistry)
 Title: Characterization of a Metal-Dependent Regulator Protein from *Thermobifida fusca*

Abstract: Iron dependent regulators are proteins found in a variety of pathogenic bacteria that cause diseases such as tuberculosis and diphtheria, but few such regulators have been thoroughly studied. The purpose of this research is to characterize a metal-dependent regulator from *Thermobifida fusca*, the causative agent of farmer’s lung. In comparison to homologous regulators, the regulator from *T. fusca* has a longer N-terminal helix. Conformational changes have been shown to occur upon metal binding in related proteins, and it has been suggested that this helix is important in DNA binding. The target gene that encodes for the *T. fusca* regulator was cloned into the pET-28b expression plasmid, and the protein was expressed in BL-21(DE3) cells. The regulator was crudely purified using a nickel-affinity column. Gel-shift assays indicate the protein successfully binds the diphtheria and tuberculosis DNA consensus sequence in a metal-dependent fashion. This research is supported by the Wabash College Byron K. Trippet and Haines Biochemistry Funds.

Poster #19

Name: Tuan Nguyen
 Sponsor: Rebecca Sparks-Thissen (Biology)
 Title: yhiM is Required for Acid Resistance in *Escherichia coli*

Abstract: YhiM is a putative inner membrane protein that is required for bacteriophage infection. To determine the function of the YhiM protein in *Escherichia coli* (*E. coli*), we tested two independent tn10 insertions into the yhiM gene for tolerance to low pH (pH= 2.5). Both Δ yhiM mutants grow normally at pH=7 but do not grow normally at pH=2.5. We next investigated the mechanism of YhiM dependent acid resistance. There are five documented acid resistance systems in *E.coli*. The first uses a glutamine-dependent antiporter to pump excess protons out of the cytoplasm. The second, third and fourth is dependent on an arginine, a lysine and an ornithine-dependent proton pump respectively. The third system is dependent on the expression of the glucose repressed sigma factor RpoS. The fourth system is dependent on a lysine-dependent proton pump. The Δ yhiM mutant was exposed to a low pH environment in minimal media in the presence or absence of glucose, arginine, lysine or glutamine to determine which acid resistance systems were absent in Δ yhiM. The results show that YhiM plays a role in the RpoS, glutamine and lysine dependent acid resistance systems but no role in the arginine dependent acid resistance system.

Poster #10

Name: Mark Osnowitz
 Sponsor: Ethan Hollander (Political Science)
 Title: Irregular Immigration: Public Opinion and European Union Directives

Abstract: This paper will explore the relationship between public opinion and the directives enacted by the European Union in regard to irregular immigration. Along with the Schengen Code, I will evaluate other directives such as the Returns Directive and FRONTE. The public opinion polls include EUROBAROMETER, IPSOS and Transatlantic Trends. Along with the public opinion polls and directives, the current literature on irregular immigration will be examined. By examining the above directives and polls it will be shown that the European Union is acting in line with public opinion.

Poster #30

Name: Joe Reese
 Sponsor: Elizabeth Morton (Art)
 Title: *Lamidi Olonade Fakeye: The Life of A Master Carver*

Abstract: Over the last several decades Lamidi Olonade Fakeye has been Africa's most renowned woodcarver as well as an international ambassador for African art. A fifth generation Yoruba sculptor from Nigeria, he comes from one of Africa's great traditions. With a backdrop of his stunning sculptures spanning nearly 70 years, Lamidi gives voice to the remarkable story of his life. Throughout the documentary, friends and experts comment on Lamidi's life, career, and the significance of his art. Also featured are extraordinary images of Lamidi carving and historic photographs. After a productive and celebrated woodcarving career, Lamidi Fakeye passed away suddenly on Christmas Day 2009, in Nigeria. This documentary was filmed during Lamidi's final tour to the United States, in October 2009, and features his final interviews. *Lamidi Olonade Fakeye: The Life of A Master Carver* is produced by Wabash College assistant professor of art history, Dr. Elizabeth Morton; the documentary is directed by Joe Reese '12; it is narrated by the Wabash College BTK assistant professor of theater, Dr. James Cherry; and the original music for the documentary was composed and played by Wabash associate professor of music, Dr. James Makubuya.

Poster #3

Names: Logan Rice and Jonathan Wong
 Sponsor: James Brown (Physics)
 Title: Attenuation Lengths of MoNA and LISA Detectors

Abstract: The MoNA collaboration is an experimental collaboration of thirteen primarily undergraduate institutions that investigates the behavior of nuclei close to the neutron dripline. The MoNA collaboration is based at Michigan State University's National Superconducting Cyclotron Lab and uses the MoNA (Modular Neutron Array) and LISA (Large multi-Institutional Scintillating Array) neutron detector arrays. These arrays are each made of 144 scintillating detectors. These detectors are made of scintillating plastic material. When a particle collides with the atoms within the scintillating plastic, the atoms release photons which are detected by photomultiplier tubes at either end of the detector. As the light travels through the detector, it loses its intensity exponentially. How dramatic this exponential decay is can be described by a parameter called the attenuation length, with the larger attenuation length corresponding to a slower decay. Recently the MoNA collaboration conducted its LISA

commissioning experiment investigating two neutron decay states of oxygen 25. As a part of LISA's commissioning, we measured the attenuation lengths of the individual detector bars that make up the LISA array and compare these lengths with those of the MoNA array. We found that the LISA bars had a larger attenuation length on average.

Poster #4

Names: Zachary Rohrbach and Tyler Buresh
 Sponsor: Martin Madsen (Physics)
 Title: Modeling the Exit Velocity of a Compressed Air Cannon

Abstract: The use of compressed air cannons in an undergraduate laboratory provides a way to illustrate the connection between diverse physics concepts, such as conservation of momentum, the work-kinetic energy theorem, gas expansion, air drag, and elementary Newtonian mechanics. However, it is not clear whether the expansion of the gas in the cannon is an adiabatic or an isothermal process. We built an air cannon that utilizes a diaphragm valve to release the pressurized gas and found that neither process accurately predicts the exit velocity of our projectile. We discuss a model based on the flow of air through the valve, which is in much better agreement with our data.

Poster #13

Name: Matt Schenkel
 Sponsor: Walter Novak (Chemistry)
 Title: Structural and Kinetic Characterization of the Acetate Kinase from *Francisella tularensis*

Abstract: *Francisella tularensis* is the bacteria responsible for causing tularemia, more commonly known as rabbit fever. Weaponized strains of *F. tularensis* were developed in the 1940's, and although all known stockpiles of these strains were presumably destroyed, the bacterium still has the potential to be easily converted into a bioweapon. In order to treat weaponized strains, new targets and treatments must be developed. For this purpose, we have characterized the acetate kinase from *F. tularensis* both structurally and kinetically. The acetate kinase gene was subcloned into a pProEX-HTb expression vector and was purified using a nickel-affinity column. The structure of *F. tularensis* acetate kinase was determined to a resolution of 2.2Å, and is similar to other known acetate and propionate kinases. The kinetic constants, k_{cat} and K_M , with acetate as the substrate were determined to be 363 s⁻¹ and 14mM, respectively. While the kinetic constants k_{cat} and K_M , with propionate as the substrate were determined to be 66 s⁻¹

and 75 mM, respectively. In addition, we utilized high-throughput virtual screening to identify potential inhibitors of the acetate kinase, and we have demonstrated that the acetate kinase is amenable to inhibitor screening using a thermal stability assay. The testing of possible inhibitors is currently being conducted. This research was funded by the Wabash College Byron K. Trippet Fund and the Haines Biochemistry Fund.

Poster #23

Name: Jingwei Song
Sponsor: Eric Wetzel (Biology)
Title: Liberation Theology and its Impact on Global Health

Abstract: We live in a global reality where the gap between the wealthy and the poor has never been wider. The gross domestic product of the world's forty poorest countries is less than the combined wealth of the world's seven richest people (United Nations Human Development Report, 2007/2008). Approximately ten million people die each year from treatable diseases. Half a century ago, Liberation Theology emerged from Latin America from a similar context. It advocated a revolutionary interpretation of the Bible to offer a "preferential option for the poor" because Jesus Christ himself lived in real material poverty. Based on this idea, Dr. Paul Farmer and several others founded Partners in Health (PIH), a non-profit organization which has revolutionized the delivery of medical care worldwide since 1983. In my presentation I will discuss how Liberation Theology helped to shape Paul Farmer's worldview and thus impacted the situation of global health.

Poster #27

Name: Adam Soshnick
Sponsor: Michelle Rhoades (History)
Title: Memory of Paris

Abstract: Each photo on my poster board references a type of living memory the French, or I, fixate on, remember, and cherish as representative of past and current French history. My poster will concentrate on what the French have selected to recall as a living memory – a certain remembrance that embodies the collective French body, mind, and soul. Most, if not all, of the photos I took represent a living memory to the French and illustrate what it means to be French. Of course, there are a few exceptions, and each photo also has a different meaning to me personally.

Poster #9

Name: Allan Swan
Sponsor: Richard Warner (History)
Title: Segregation and Separation: The Aftermath of the 'Troubles'

Abstract: I would like to inform the students and faculty about the research I did for my history senior seminar. For the seminar class I chose to analyze the social effects of the Northern Irish conflict on the general Irish population. Therefore, the purpose of my paper was to outline the social areas that have been plagued by the conflict in Northern Ireland. In order to do this I introduced and analyzed the different aspects of social life (education, politics, sports and religion) that have been affected by the 'troubles' and linked them to the affects they have had on the children of the time. I concluded with the thesis that after reviewing the sources discovered, it became apparent that the conflict in Ireland has severely affected the way in which the population performed social tasks; this led to the creation and maintenance of segregation between two groups, which has essentially forced the children of the time to identify with their religious identity due to the lack of a true interlinking national identity.

Poster #16

Names: Alan Tom and Peter Gunderman
Sponsor: Walter Novak (Chemistry)
Title: Growth, Purification, and Crystallization of L403X Benzoylformate Decarboxylase Mutations

Abstract: Benzoylformate decarboxylase (BFDC) is a thiamin diphosphate (ThDP) dependent enzyme that catalyzes the conversion of benzoylformic acid to benzaldehyde and carbon dioxide and is a crucial protein in the mandelate pathway. Previous research demonstrated that BFDC bends ThDP into an energetically unfavorable "V" conformation around a leucine side chain located at position 403. This interaction helps ThDP form the reactive ylid to obtain the necessary energy for decarboxylation. Investigations into other decarboxylase enzymes also show that, while sequences may be similar, leucine at this position is specific to BFDC. Our project examined the functional role of this leucine through site directed saturation mutagenesis. Collaborators at IUPUI generated multiple mutations of the 403 site of BFDC and performed the kinetic analyses. In Dr. Wally Novak's lab at Wabash, we expressed, purified, and crystallized several mutants of BFDC. These were taken to Argonne National Laboratory's Advanced Photon Source in order to determine the protein's structure. We were able to collect a variety of high resolution datasets that will allow us to fully assess the role of leucine 403 and its effect on the conformation of ThDP.

Poster #12

Name: Michael Trevino
 Sponsor: Patrick Burton (Biology)
 Title: Regeneration of the Sea Anemone
Nematostella vectensis Post Injury

Abstract: *Nematostella vectensis* is a cnidarian sea anemone that undergoes regeneration after sustaining injuries. The standard mechanism for regeneration in most organisms involves increased cell division and differentiation of the surrounding cells to reform lost tissues and structures. Preliminary observations of *N. vectensis* aboral regeneration contradicts this mechanism and instead points towards regeneration of the aboral structure with relatively little cellular division. Using a variety of nuclear and DNA staining techniques, the amount of cellular division occurring post-injury can be qualitatively analyzed. The resulting data reconfirm that aboral *N. vectensis* regeneration has markedly decreased amounts of cellular division when compared to oral regeneration.

Poster #7

Name: Bo Wang
 Sponsor: Scott Feller (Chemistry)
 Title: Effects on the Isotherm Plot of
 DPPC-PMPC System by Different
 Experimental Conditions with a
 Langmuir Trough

Abstract: The most important indicator of the monolayer properties of an amphiphilic material is given by measuring the surface pressure as a function of the area of water surface available to each molecule. This is carried out at constant temperature and is known as the "isotherm" plot. By using trough, the surface area of the monolayer was changed, resulting in a change in the surface pressure. The isotherm plot is then made by computer. In this research project, the isotherm plot of Dipalmitoylphosphatidylcholine (DPPC) is measured under different experimental conditions. The DPPC lipid was spread out on the surface of PMPC polymer solution, which is also known as the "Langmuir film". To make the comparison, four PMPC of different molecular weights were used, named PMPC 2500, PMPC 6500, PMPC 9000, and PMPC 1123. For each of the polymer solution, the concentration was 10uM and 30um. Besides, the project was conducted under different temperatures of 20°, 25°, 30°, and 37°. Under the help of camera, we can see the phase-transition states of the lipid monolayer.

Poster #28

Name: Chris Widup
 Sponsor: Michelle Rhoades (History)
 Title: Historical Memory of Paris

Abstract: My project will discuss the Historical Memory of Paris, more specifically, the Holocaust in France. I developed my own lieu de memoir, or memory of Paris, which was portrayed through pictures on my disposable camera. I only chose to display 12 pictures from the trip that were the best representations of French culture and history in my eyes. I applied what I learned from Pierre Nora in class and studied the Historical Memory of Paris and then applied what I learned to a more specified subject matter. My topic for the class was the Historical Memory of the Holocaust in France. In other words, I studied what the French choose to remember and to forget about the Holocaust and how the history is conveyed today.

Poster #17

Name: Casey Wright
 Sponsor: Tami Ransom (Biology)
 Title: Worms in Worms

Abstract: Every organism has parasites, and these parasites often affect the fitness and behavior of an organism. Earthworms are no exception to this rule, although study of parasitic interactions is neglected. Although earthworms are very common in Indiana, they are not native. They have been introduced in many agricultural systems both intentionally and accidentally. The first goal of this study was to identify some common species in several systems in the area: Allee woods, the Biology Department pond site, and dry creek (near campus). This study also sought to identify parasites within common earthworm species. After finding nematodes in the nephridia of *Lumbricus terrestris*, the Canadian Nightcrawler, we hypothesized that we would find lower nematode loads in earthworms from agricultural fields compared with a nearby grassy field site, due to either differences in density or application of pesticides to agricultural fields. Research is on-going, but some preliminary data will be ready by the January.

Poster #8

Name: Shengshuang Zhu
 Sponsor: Scott Feller (Chemistry)
 Title: The pKa of Retinal Depends on the
 Conformation of the β -Ionone Ring

Abstract: While a lot of attention has been placed on how the methyl groups, charge distribution and protein environment influence the photo transduction process of retinal, few reports the influence of the conformation

of β -ionone ring during the retinal change from meta I to meta II. In this research, we try to find correlation between the C6-C7 conformation and the retinal photo transduction process, especially how the ring conformation influences the pKa value. HF, B3LYP and MP2 gas phase calculation and different $\Delta G_{\text{solvation}}$ calculation methods are conducted in order to compare the accuracy of these methods.

