2019 INDIANA UNIVERSITY SOUTH BEND
UNDERGRADUATE RESEARCH CONFERENCE
FRIDAY, APRIL 12, 2019

Conference Program and Abstracts

SCHEDULE

8:00 – 9:00 a.m.  Registration  Education & Arts (EA) main hallway
9:00 – 10:00 a.m.  Panel Session I  EA classrooms
10:00 – 11:00 a.m.  Poster Presentations and Coffee Break  EA main hallway
11:00 – 12:00 p.m.  Panel Session II  EA classrooms
12:15 – 1:15 p.m.  Lunch  SAC 221-225 2nd Floor
1:30 – 2:30 p.m.  Panel Session III  EA classrooms
Welcome Message

Welcome to the 2019 IU South Bend Undergraduate Research Conference! The URC has become a springtime institution on our campus, drawing the participation of around one hundred students, faculty, staff, and observers all committed to the research and creative process. The URC is one of many outlets for IU South Bend students to showcase the research they complete in their classes or as part of research teams with faculty, and the conference serves as a moment to publicly recognize the high quality of students’ work.

As always, the conference program this year consists of a wide range of exciting research and creative activities from a range of disciplines, as well as a variety of research posters. We encourage you to visit these diverse panels and posters, and engage with student presenters, asking about their research, methods, and findings.

Acknowledgments

The faculty organizers of this conference (Kristy Ganoe, Igor Juricevic, Mohammad Merhi, Shahir Rizk, Zach Schrank (chair), and Jannike Seward) would like to congratulate and thank all the students participating this year. We also commend their faculty mentors (named in parentheses in this program) for their dedication to their students.

We deeply appreciate the enthusiastic support provided by Interim Executive Vice Chancellor for Academic Affairs Linda Chen and Interim Chancellor Jann Joseph, and the efforts of committed IU South Bend instructors and staff, including the members of the Undergraduate Research Advisory Council.

The conference poster and program cover were designed by IU South Bend student Phillip Mischke.

No conference is possible without the behind-the-scenes work that often goes unacknowledged in the areas of purchasing, facilities scheduling and setup, food preparation and catering, maintenance, information technology, and many more. Thank you to all those who help make this conference possible.

Professional Courtesy

Please be considerate by silencing your cell phone and refraining from entering and leaving session rooms during presentations.
CONCURRENT PANELS: SESSION I (9 – 10 A.M.)
Location: Education & Arts classrooms, North Hallway

Science Session: X-Rays, Electrons, Bacteria, and Dark Matter (EA 1013)
Moderator: Shahir Rizk

Dark Matter Acoustics
NATHAN WALKOWSKI (Levine)

A Simple Test of Using Powder X-Ray Diffraction to Quantify Calcite to Aragonite Fraction in Carbonate Samples
SKYE MCDONALD (Scott)

Using Powder X-Ray Diffraction to Identify and Characterize Magnetic Minerals in Lake-Bed Sediments in Conjunction with a Magnetostratigraphic Study of Turlock Lake, California
SHWETHA VITTAL (Scott)

Bounding the Average Inner and Outer Radial Electron Distances in Atomic Systems
Using the One-Electron Probability Density
PHILLIP MARMORINO (Marmorino)

Antimicrobial Use and Extraction of Essential Oils
JULIE WEBSTER

Race, Nation, and Class in Film and Literature (EA 1015)
Moderator: Jake Mattox

A Future History of America: A Study of Capitalism as Satire in Post-Modern American Literature
JON ADAMS (Mattox)

Before the Virgin Guadalupe: The Influence of Mesoamerican Myth on Chicana Literature
ANDREW FECHER (Mattox)

The Black Cat: An Analysis of Black Cowboys and How They Fit into a White Cowboy West
JOSEPH WALLS (Mattox)

The Modern Perception of The Chicago World’s Fair and the Incomplete Representation Found of the Contemporary Novel, The Devil in the White City: Murder, Magic, and Madness at the Fair that Changed America
KAYLEE OATMAN (Mattox)
Ambiguity by Design: Interactions of Realism and Naturalism in Paul Laurence Dunbar’s The Sport of the Gods
NICK PAPPAS (Mattox)

**Graphic Memoirs: Life Stories Told through Comics (EA 1019)**
*Moderator: Jannike Seward*

Hi, Grandma
JAMES GIEGERICH (Ervick)

The Devil in the Trees
MAGGIE FINK (Ervick)

The Eighth Grade Blues
SARAH BULL (Ervick)

**The Psychology of the Perception of Abuse, Aesthetics, and Dogs (EA 1021)**
*Moderator: Igor Juricevic*

Popularity and Abuse of Female Comic Book Characters.
LANDRIE JONES (Juricevic)

Canine Training Methods: Will A Dog Be Able to Discriminate Between Various Colors or Between Various Shape More Effectively?
CASSANDRA REYES (Juricevic)

Effects of Motor Mimicry on Victim Blaming
CALLISTA LOUTZENHISER (Juricevic)

Complex Choices and Why You Won’t Like Them
DAVID PUGH (Juricevic)

**Assessing Challenges from the Past (EA 1023)**
*Moderator: Lisa Zwicker*

Jewish Women, New Women: The Complexity of Jewish Identity in German-speaking Central Europe
SYDNEY ROHR (Zwicker)

The Cold War and the Space Race of the 1960s: from Sputnik to Apollo 11
WILLIAM SPALDING (Nashel)
History of Abortion Rights in the United States
SARAH KNOWLTON (Gerkin)

Conforming or Reforming? A Critical Feminist Reading of Popular versus Christian Romantic Fiction
JESSIE DION

The Politics and Economics of Contentment (EA 1025)
Moderator: Mohammad Merhi

The Pursuit of Happiness: What does it Cost?
HUDSON CHUPP (Merhi)

(Im)balanced Budget: How the Media Portrays Congress During a Government Shutdown
ANDREW BENCSICS (Smith)

POSTER PRESENTATIONS AND BREAK (10 – 11 A.M.)
Location: Education & Arts Main Hallway

10 a.m.: View the following posters and speak with presenters while enjoying continental breakfast.

The Effect of EF-P Post-translational Modifications on Cell Physiology in E. coli
KEON JONES (Ibba)

Measurement of Position Effects in An Acoustic Test Chamber
KELLY ALLEN (Levine)

Cannabis and Inflammation
JORDAN ZADEREJ (Clark)

Expression and Purification of Adenosine Deaminase and Mutants Associated with Severe Combined Immune Deficiency
CAITLIN SCHULZ, AHMAD ALSAHFI, SAYVON S. ESPER, WINNIE A. IHANO, ANNA R. MCBETH, HUNTER A. RICHMAN (Rizk)
CONCURRENT PANELS: SESSION II (11 A.M. – 12 P.M.)
Location: Education & Arts classrooms, North Hallway

Food in Culture, Society, and the Community (EA 1013)
Moderator: Andrea Rusnock

Moral Disengagement: Why We Eat Pigs but Not Our Dogs
KAYLEE DEBOE (Brittenham)

Unsustainable Agriculture Methods in Indiana Farming
MICHELLE JONES (Bailey)

"Putting Money Where My Mouth Is”: Motivations and Experiences among Food Co-op Members
KIMBERLY HAINING (Schrank)

Education, Inequality, and Race in the United States (EA 1015)
Moderator: Jake Mattox

What about me: Failings of Education reform in African American Communities
OMINEE HAYNES (Mattox)

Public University Performance Funding and the Non-Traditional Student: How Performance Funding Hampers True Learning
JEFF CROWDER (Mattox)

Kohn and The Grading System: Evaluating the Use of Grades as Rewards to Motivate Students
COLLEEN SCARBOROUGH (Mattox)

In the Shadow of the White City: The Haitian Building and Black Representation During the 1893 Columbian Exposition
DANIELLE LYONS (Mattox)

French Translation of Poetry and Children’s Books, Panel 1 (EA 1019)
Moderator: Anne Magnan-Park

Traduire Les Jeux De Mots Dans Lili Nite De Sandra Costa, Un Livre Pour Enfants Abordant Le Thème De La Maladie D’alzheimer.
CATHERINE BEHAN, HAILEY HAMILTON, SAMANTHA FAZEKAS (Magnan-Park)
The Trouble in Translation: French Homonyms in La Boîte aux lettres de Gustave by Sandra Costa

NICOLE KUJAWA, MADISON WRISLEY (Magnan-Park)

Translation of Pun filled French Kamishibai Crapauds sur le pot into English

EVA MONHAUT, HANNAH SHANK (Magnan-Park)

The Psychology of Media and Mood on Behavior (EA 1021)

Moderator: Igor Juricevic

The Effect of Mood on Cognitive Functions Localized in the Prefrontal Cortex: Verbal Fluency and Working Memory

HANNAH QUINN (Juricevic)

Lack of Physical Communication and Connection to Male Suicide

ALEXIS HALL (Juricevic)

How Social Media Impacts Women’s Self-Esteem and Intervention Materials

ALYSSA EUBANKS (Juricevic)

Cellphone Use Around the World: Is it Contributing to Cognitive Decline?

MAURA HOBAN (Juricevic)

LUNCH (12:15 – 1:15 p.m.)

Location: Student Activities Center (SAC) Rooms 221-225

Speakers

INTERIM CHANCELLOR JANN JOSEPH

PATRICK FINNIGAN (Keynote Speaker)
CONCURRENT PANELS: SESSION III (1:30 – 2:30 P.M.)
Location: Education & Arts classrooms, North Hallway

Museums, Monuments, Neighborhoods: Reading Public Display (EA 1013)
Moderator: Kristy Ganoe

AARON MCGINNIS (Mattox)

Identifying Ideological Presentations: An Analysis of Modern Museum Display Politics
SARAH PAEPLOW (Mattox)

Local Historical Sites of Potawatomi’s Leaders in Indiana
ELISA VANETT (Mattox)

Remembering Hiroshima: Why are details of the Hiroshima Bombing Sheltered from Americans?
CHRISTIAN YODER (Mattox)

Learning What the Lerner Theater Means for the Future: A Revitalization of a Small Town Downtown
GINA MASSARO

Community-Based Research (EA 1015)
Moderator: Zach Schrank

Team Researching Vibrancy: What makes a community thrive?
CATHERINE BEHAN, RODGER PINTO, KATELYNN PEEL, MYA PERRY

French Translation of Poetry and Children’s Books, Panel 2 (EA 1019)
Moderator: Anne Magnan-Park

Translating Germaine aux Oiseaux: Overcoming the Translation Challenges of Idiomatic Phrases, Rhyme, Tone, and Style
EMILY ALKIRE, HANNAH QUINN (Magnan-Park)

Translating rhymes in Petits Trous by Cecile Bergame: An analysis
JULIE CLARK, TINA GRACE (Magnan-Park)

The Translation of rhymes in Le Pomme et le Hérisson
WILLIAM MYERS, ADAM LEIN, LEROY HOLLIDAY (Magnan-Park)
The Psychology of Politics, Race, and Sexual Orientation (EA 1021)

*Moderator: Igor Juricevic*

- Are Political News Articles Stressing Us Out?
  MARC MCELLIGOTT (Juricevic)

- Development of Political Attitudes
  RENE PINTAL (Juricevic)

- Political Affiliation and Word Usage
  SANDRA RIDGE (Juricevic)

- The Effect of Attire on Perception
  BENJAMIN EICH (Juricevic)

- Conformity and Church Beliefs: Predictors of Christian Attitudes Toward Gay and Lesbian People
  TAYLOR YODER (Juricevic)

Anthropology (EA 1023)

*Moderator: Zach Schrank*

- Anthropology Food Culture Blog
  DANIEL CLAY (Chera)

- Historical Body Modification
  KIMBERLEY HAINING (VanderVeen)

- Morphological Comparisons of the Hominids
  KARLEY SPRIGGS (VanderVeen)
PRESENTATION ABSTRACTS

A Future History of America: A Study of Capitalism as Satire in Post-Modern American Literature
Jon Adams
This project investigates examples of capitalism in post-modern and sub-categorical American literature, as well as evaluates the effects of its satirical usage against the current climate of the American capitalist economy. Examples of literature that many cited for research include American Psycho by Bret Easton Ellis, Fight Club by Chuck Palahniuk, Native Son by Richard Wright, The Big Money by John Dos Passos, and Maggie: A Girl of the Streets by Stephen Crane. Additional literary and scholarly works may also be sited dependent on forthcoming research. The goal of the project is to discover a pattern of satire that works to illustrate America dependent on capitalism to survive, and by in large, ruining itself by strengthening economic values while dismissing family and social responsibilities to all of mankind.

Translating Germaine aux Oiseaux: Overcoming the Translation Challenges of Idiomatic Phrases, Rhyme, Tone, and Style
Emily Alkire and Hannah Quinn
Whoever came up with the saying “sticks and stones may break my bones, but words will never hurt me,” probably never experienced the internal war that wages inside the mind of the literary translator. The battles of this internal war take place during the time that a translator take to painstakingly pick and choose words or phrases that best recreate the original meaning AND style is imperative to the integrity of the translation. In our French to English translation of Germaine aux Oiseaux, written and illustrated by Anaïs Lambert, we pay specific attention to idiomatic phrases, rhyme, tone, and style. This story follows a young boy’s experience of friendship with an elderly woman. Through creative play on idioms and the occasional rhyme, Lambert engenders a playful and poetic world which reflects on the mystery of death and grief. We will examine the role of poetic renditions of idiomatic phrases and occasional rhymes as a way to both interpret the text and secure an insightful translation.

Measurement of Position Effects in An Acoustic Test Chamber
Kelly Allen
PICO bubble chambers utilize a superheated liquid in order to detect Dark Matter particles. When a dark matter passes through the chamber, it might hit a nucleus in the fluid causing the resulting ion to recoil and distribute heat along its path. The heat would then cause a bubble to form, which would emit sound waves. Bubbles from dark matter scattering have been shown to emit different sound waves than those caused by the radioactive decay of nuclei – the main background to the experiment. An acoustic test vessel has been fabricated to aid with the design of acoustic transducers for PICO. This poster describes measurements of directionality effects from a calibrated sound source used in the acoustic test chamber.

Team Researching Vibrancy: What Makes a Community Thrive?
Catherine Behan, Roger Pinto, Katelynn Peel, and Mya Perry
Teaming with Vibrant Communities Elkhart, our Sociology Capstone course conducted interviews with 40 IUSB students and graduates from Elkhart County to understand what they think about growing up there and their future in the community. The goal was to help Vibrant Communities Elkhart learn what residents—particularly those college graduates they hope will be a part of thriving communities—think is vibrant and what is not. Our research helped identify both opportunities and challenges to the ability of Elkhart County to retain skilled workers and enable their community to thrive. Our panel of four student researchers will discuss the various challenges they faced in conducting the research as well as key findings.

TRADUIRE LES JEUX DE MOTS DANS LILI NOTE DE SANDRA COSTA, UN LIVRE POUR ENFANTS ABORDANT LE THÈME DE LA MALADIE D’ALZHEIMER.
Catherine Behan, Samantha Fazekas, and Hailey Hamilton

Lili Note de Sandra Costa nous entraîne dans l'univers de Lili, une petite fille qui s'efforce de comprendre la perte de mémoire de sa grand-mère et le chaos qui règne dans sa tête. Dans cette histoire, l'auteur utilise plusieurs métaphores relatives à la perte de contrôle, du chaos, et de la confusion. Le titre lui-même Lili Note est un jeu de mot, qui signifie « sans cervelle » et est une métaphore dénotant le manque de concentration. Parce que ce jeu de mots régit tout le livre, nous devrons alterner le nom du. Par exemple, nous avons changé le titre, mais restons fidèles au ton du livre.

Costa utilise également le rythme et la rime pour illustrer la confusion à laquelle la jeune fille est confrontée. Ces techniques, en plus de l'allitération et de l'assonance, procurent également un sentiment de réconfort face au chaos. Les illustrations de Jean-Michel Zurletti renforcent la sensation de tourbillon émotionnel et cognitif - ainsi que affection profonde que Lili a pour sa grand-mère.

L'histoire est racontée dans la voix d'une petite fille mûre, reflétant l'expérience de l'auteur. Il est donc important pour nous de préserver le sens des responsabilités du personnage, et pas seulement ses observations.

(Im)balanced Budget: How the Media Portrays Congress During a Government Shutdown
Andrew Bencsics

Congress’ approval ratings are almost always extremely low for several reasons, including the idea that Congress members are greedy and out of touch, or that Congress fails to act on important issues. It would be difficult to measure whether or not Congress is corrupt or out of touch, but it can be seen when Congress takes action. One of the most popular methods of keeping up-to-date with what Congress is doing is by reading news articles, which often discuss an issue and include facts regarding the event as well as quotes from people involved. Despite this, news articles may not be neutral and can lean positively or negatively. This can be a result of a negative topic or how the journalist worded the article. A specific issue that can be examined is the case of a government shutdown which occurs when Congress fails to agree to or pass a budget. This may be seen as Congress failing to act or perhaps simply doing nothing, thus relating to their very low approval numbers. Congress votes on bills that often require a compromise, which does not always work out as seen in the case of a government shutdown. When Congress is not able to compromise and the government closes as a result, it is very likely that people will be unhappy with them. The overall negativity of a government shutdown can be determined by examining several variables throughout a number of news articles.

The Eighth Grade Blues
Sarah Bull

This is a graphic memoir detailing my re-relocation to Indiana in 2010 and how that consequently affected my school year and life. This story looks at the awkwardness of middle school and maturation from that point.

The Pursuit of Happiness: What Does it Cost?
Hudson Chupp

The populations of countries around the world experience different levels of happiness based on a variety of factors. In the 2018 World Happiness Report published by the United Nations Sustainable Development Solutions Network, they measure happiness based on simple demographic metrics and responses to the Gallup World Poll. While this may provide a view of how happy a country is, it does not provide actionable insights for governments to improve the happiness of their population. This study examines spending and well-being variables that may be affected and changed by economic and political policies. We find significant correlations and causal relationships between the world happiness index and health spending, education spending, average annual hours worked per worker, and more. Our analysis was narrow and focused solely on the 36-member countries of the OECD. Therefore, the results may not be scalable to a global examination of all countries, particularly those still in the process of development.
Translating Rhymes in Petits Trous by Cecile Bergame: An Analysis

Julia Clark and Tina Grace

Petits Trous follows a young boy named Little Sir who lives in a cold, grey little town and finds comfort in the solitude of his little home, filled with little holes. Encouraged by an unlikely friend, Little Mr. steps out of his little home and sets out to find a world beyond the grey little town, and perhaps, something to fill all of those little holes. Special attention will be given to the stylistic elements of the narrative including the imagery, the tone of the text, and atmosphere of the world in which Little Sir lives. This presentation will also reflect on the linguistic challenges we encountered, such as the translation of metaphors, the recreation of the distinctive voice of Little Sir and his unlikely friend as well as the reproduction of the rhythm of the narrative. This analysis will bring to light the complex process of translation and the difficulties of bringing together the author’s intent in meaning, tone, and style, into a cross-cultural interpretation.

Anthropology Food Culture Blog

Daniel Clay

The idea for my project was to create an Anthropology Food Culture blog with research-based essays and related media posts to engage further conversation on the globalized melting-pot of food culture we have today. The idea behind using this method was to share information found in my research and opinions about the effects of modern globalization. Further understanding of how both our individual ideas about food and worldwide perception of food culture is evolving. Exploring the ever-expanding influence of globalization that impacts our perception of global food culture. Demonstrating how technology plays a role in developing our current food culture and broadening our epicurean curiosity through social media, articles and other forms of mass media that influence global food culture. Relating subject matter from readings, class discussion, research, and scholarly articles to add relevant information and reinforce my thesis as well as formulating these sources into easily digestible blog posts.

Public University Performance Funding and the Non-Traditional Student: How Performance Funding Hampers True Learning

Jeff Crowder

Public universities have long been considered an affordable way for students to obtain their college degrees. However, with state budgets tightening across the country, more states have gone to performance funding as a way to gauge the effectiveness for each school. This is true in Indiana as 4-year graduation rates are the metric used to reward schools. But, for a non-traditional (not directly out of high school) attending college after a long break, this performance funding directly affects the quality of my education. Less funding means fewer classes and fewer professors, but also can lead to lower quality and less interaction with staff. It also effects what I call “true learning” meaning an extension of education that extends beyond what a textbook could provide; creating a different way of thinking and opportunities to interact beyond the classroom. As a student who was 20 years removed from college, this gauge of performance is shocking and disheartening. Using state data, opinions from educational experts, interviews with fellow students and my own personal experience this project will show how performance funding as currently structured leads to a poorer experience at campuses like IU South Bend.

Moral Disengagement: Why We Eat Pigs but Not Our Dogs

Kaylee DeBoe

In America and much of the Western World, meat consumption and owning pets are common practices that exist alongside one another. Most people would never consider eating their cat or dog, but consume meat on a semi-regular basis. How do we determine which animals are pets and which are food? In “A Comparison Study of Meat Eaters and Non-Meat Eaters on Mind Attribution and Moral Disengagement of Animals”, Chin-Siang Ang, Nee-Nee Chan, and Lavanya Singh state that moral disengagement allows pet owners to mentally separate their domestic animals from those they eat. They also discuss the idea that animals consumed by humans are often perceived to possess lower mental capacities, thus somehow
making them more fit for human consumption. My presentation will analyze this claim by examining how the societal shift away from raising and killing our own livestock intersects with moral disengagement to justify meat consumption in the minds of humans. In addition, I will discuss complex cultural variables, such as beef bans in India and the consumption of the dead amongst the Gimi of the Papuan Highlands, which complicate the assumption that an individual’s decision to eat meat stems purely from ethics.

Conforming or Reforming? A Critical Feminist Reading of Popular versus Christian Romantic Fiction
Jessie Dion
In a survey of nine romance novels from bestseller lists in 2015-16, this paper will conduct a critical feminist reading to determine some of the differences between popular and Christian romantic fiction. Critical literary readings are most often performed on classic texts, but are rarely performed on more modern texts with measurably high readership. This paper will turn a critical eye to the publications intended for the popular reader – who is, as research has shown, a critical reader. Through my research I studied four critical elements in each novel: men’s and women’s roles, power structures, female friendships, and subversion of patriarchal assumptions. Christian novels tend to use Biblical archetypes and fit women into the patriarchal system which places God first, then men, women, and then children in age order. Popular romantic fiction works tend to have a freer power structure, allowing men and women to share control, as well as displaying a vastly diverse canon of authors and characters. Ultimately, Christian fiction adheres to the Christian model of the family with little diversity, while popular romantic fiction allows for diverse intersections and different types of lifestyles. Since romantic fiction is intended to be relatable for its readers, this subject has profound implications for the Christian publishing industry.

The Effect of Attire on Perception
Benjamin Eich
Past research has examined how attire has influenced the perception of professionals while dressed in different attire, indicating that people like it best when certain professions wear certain attire. This study investigates how race and attire impact the perceived friendliness of individuals. Participants rated models’ likeability, with the models either wearing formal or casual attire, and either being black or white. This study found that an individual’s attire has a statistically significant impact on how friendly they are perceived to be, but that the models’ races do not have a significant impact on their perception of friendliness. These results imply when participants view both black and white models in the same attire, there is no significant difference. However, this study shows that the attire an individual wears has a large impact on how other perceive them, with casually dressed individuals being perceived as more friendly. Combined with past research, this indicates that individuals should wear casual attire to be perceived as the most friendly, especially in the mental health field.

How Social Media Impacts Women’s Self-esteem and Intervention Materials
Alyssa Eubanks
Does the use of social media impact women’s self-esteem? And can this be affected by levels of awareness for social comparison? To put this to test, participants either watched a 2-minute intervention awareness video discussing the psychological harm from social comparison, or a control video representing what the ideal woman should look like and the perfect features of a woman. After participants watched the video, they were asked to look at 10 photographs of various popularized Instagram influencers. Afterwards, participants answered various questions related to how they felt while looking at the pictures of the women, and questions related to self-esteem. Results suggested that many of the participants assigned to the intervention awareness video on social comparison did partake in less social comparison after looking at the picture of the women and had higher self-esteem levels than those who watched the control video. This suggests that there are ways to intervene in social media’s psychological harm against women, and that the use of more awareness intervention materials could
possibly help create greater self-esteem and a better outlook on the self for women. Thus, applications may be applied, such as teaching children how to use social media safely.

**Before the Virgin Guadalupe: The Influence of Mesoamerican Myth on Chicana Literature**  
*Andrew Fecher*

To paraphrase Carlos Fuentes, “Mexican culture is a successive series of buried mirrors where the past continually reflects itself upon the present.” We see this in everything from Mexican customs and traditions to the foods and architecture. It does not stop there. In my research project I will demonstrate how the myths and legends of Mexico’s carry forward into modern Chicana literature. Many well-known critics and authors of Chicana literature pay homage in passing to the literary influence of myth and legend in Chicana texts however, they address this as though the themes and ideas central to the stories are a completely of Western origin. Using one of the older myths, The Legend of Princess Donaji, I will explore how female heroism and concepts acculturation through integration and violence carry forward into Sandra Cisneros’ The House on Mango Street and show that they connect to origins and influences of the heroine in Mexican culture before the Virgin of Guadalupe or Malina/La Malinche. The purpose is to use modern literature in conjunction with Mesoamerican myths to show that egalitarianism, feminism, and acculturation are neither modern nor exclusively Western concepts.

**The Devil in the Trees**  
*Maggie Fink*

From the pews of a church to the mountains of China, "The Devil in the Trees" explores a spiritual journey to find peace and belonging. Combing visual art with poetry and prose, this graphic memoir uses the medium of comics to tell a personal story of leaving a religious movement rooted in divisiveness. The narrative moves from childhood to present day as the author highlights specific moments that shifted her worldview and led her to an understanding of the world that incorporated the spirituality intrinsic to her identity with her skepticism about church the Scriptures.

**Hi, Grandma**  
*James Giegerich*

A graphic memoir telling the story of a grandson's struggle to connect with his grandma, and the events surrounding her passing away.

**Historical Body Modification**  
*Kimberly Haining*

Ancient traditions of body modification through artificial means is still a tradition today in many cultural circles. I will be looking at modern methods of artificial cranial deformation/modification, neck elongation and foot binding through the lens of a forensic bio-anthropologist to get a better scope on ancient skeletal deformations. To understand the remains of ancient individuals with abnormal skeletal systems found today, I must look at present day body modifiers and the methods they incorporate to achieve such a feat. So far, the simplified motivation behind much of what I have found is beauty. It is important to research the "why" behind current extreme body modification so that an understanding may come to light about abnormal skeletal alterations found throughout past cultures. Past and present cultures are still connected through the practice of relatively similar traditions.

"Putting Money Where My Mouth Is": Motivations and Experiences among Food Co-op Members  
*Kimberly Haining*

This paper focuses on the incorporation of food co-ops into towns in hopes to uplift the community through artisanal, locally grown food products. The ethnography done by undergraduate students on the Purple Porch revealed that there is a strong sense community within food co-ops due to the people who tend to visit these co-ops are like-minded on subjects of ethics, social justice, local sustainability, consumer education and the larger idea of transparency about where food comes from and what is in it.
The larger idea of safe and healthy food is what typically attracts people to a co-op in the first place. I will be presenting the final, published, product of this ethnography, representing the students and professor who worked hard on this project.

**Lack of Physical Communication and Connection to Male Suicide**  
*Alexis Hall*

The lack of physical intimacy in within interpersonal relationships involving a male figure is can be often limited and restricted. In certain societies, specifically cultures influenced by western ideologies, physical communication is accepted in minimal amounts. This study correlates the social context in which physical intimacy is limited and its connection to male adult suicide. Previous theories that support this hypothesis are as follows: (1) Male infants are touched more frequently and handled more roughly BEFORE 3 months. (2) A study that was conducted on the physical intimacy that varied across countries and what specific physical intimacy was accepted or refused. (3) The emotional bonds between individuals are closely associated with the bodily patterns where social touch is allowed. (4) A lower frequency of parental touching during childhood influences the development of depression and contributes to a poorer image of an individual’s romantic partner during later adolescence and early adulthood. (5) Physical communication within non-human primates is imperative for survival.

**What About Me: Failings of Education reform in African American Communities**  
*Ominee Haynes*

This paper will examine educational reform and its failings for African American adolescents in comparison to their white counterparts in America. Education reform has been a topic in America that has not been resolved. Using School Choice and Afrocentric Charter schools: a Review and Critique of Evaluation Outcomes to give a perspective of Charter schools specifically placed in impoverished areas that do not improve the education of Black students. At the statewide level, these charter schools often under perform in regards to standardized testing. This article demonstrates how politics are at the heart of this when politicians terminate public schools to replace them with more expensive charter or private schools. The Charter schools based on the article have been proven to underperform while being called a “school of choice”, that is responsible for higher academic results statewide. This paper will be specifically examining data both local and nationwide.

**Cellphone Use Around the World: Is it Contributing to Cognitive Decline?**  
*Maura Hoban*

Smartphones have simplified our lives by bringing technology to our fingertips (literally). According to Bank My Cell, “The machines have officially taken over with almost 1 billion additional mobile connections than there are people – To put this in perspective, since its inception in 1973 mobile device connections has surpassed the number of people in the world, making it the fastest growing man-made technology phenomenon ever” (2019). Although cellphones have solidified themselves in everyday society, the use of the them may come with a consequence. The purpose of this experiment is to investigate whether cellphone ownership affects cognitive performance. I selected fifty countries and researched he smartphone penetration for each county. I then measured cognitive performance by recording literacy rates and math scores for each country. I used a correlational test to see if there is an association between cellphone ownership and cognitive performance. My results revealed a high positive correlation between cellphone ownership and cognitive performance. These results suggest that cell phone use is actually beneficial for certain cognitive abilities, like literacy.

**The Effect of EF-P Post-translational Modifications on Cell Physiology in E. coli**  
*Keon Jones*

Elongation Factor P (EF-P) is a universally conserved translation factor that alleviates ribosome pausing at polyproline motifs by facilitating peptide bond formation. Without EF-P, translation elongation becomes the rate limiting step of protein synthesis and can lead to a wide range of phenotypes. Generally,
characterization of efp mutants has been performed in conditions optimized for rapid growth for Escherichia coli. In this study, we observe that the Δefp phenotype is dependent on growth rate in E. coli. In rapid growth conditions, Δefp E. coli displays many defects, including increased doubling time, sensitivity to antimicrobial agents, and global ribosome pausing compared to the wildtype. When growth is slowed under conditions such as low temperatures, these defects are abolished. Using polyproline translation reporter assays, we observed the requirement for EF-P in translation of polyproline motifs is greatly diminished under slow growth conditions. Optimization of ribosomes by modified EF-P allows for proficient synthesis of proteins containing proline stretches. EF-P discontinues ribosome stalling for proteins necessary for cellular functions including virulence, motility, cell viability, and growth.

**Popularity and Abuse of Female Comic Book Characters**
*Landrie Jones*

Previously researched material offers interesting glimpses into the subconscious of what audience members find entertaining. For example, a previous study found that men enjoy movie scenes with physical abuse towards females more than the control scenes with no abuse. Moving forward with this information I have been analyzing female comic book characters and whether there is a correlation between the abuse they endure and their popularity with audience members. There has been significant data supporting this claim of popularity increases with the percentage of abuse.

**Unsustainable Agriculture Methods in Indiana Farming**
*Michelle Jones*

This presentation includes a white paper that details the problematic farming practices we often see throughout Indiana. After highlighting specific unsustainable practices, including monoculture farming and the use of herbicides and pesticides, the paper then describes current solutions we have to the problems at hand and other possible solutions that our community should be working towards. The current alternatives that are highlighted in the paper are specific to regional efforts that are being made to combat the negative impacts of unsustainable farming practices, including the Unity Gardens of South Bend and the Good Shepherd Montessori School's Urban Farming program. The paper focuses on the philosophy of permaculture farming and the main principles of sustainability, incorporating information regarding the triple bottom line of sustainability and the system conditions for a sustainable society.

**History of Abortion Rights in the United States**
*Sarah Knowlton*

This presentation will start from the beginning of abortion rights in the U.S. to where it stands today.

**The Trouble in Translation: French Homonyms in La Boîte aux lettres de Gustave by Sandra Costa**
*Nicole Kujawa and Madison Wrisley*

La Boîte aux lettres de Gustave is a children’s book whose main character, a little box, has been damaged and is set on a journey to find her place in a world where she no longer fits. As she explores her options, it occurs to her that she can be a letterbox for a homeless man who is one of the few people who doesn’t have one already. Together they give each other a purpose. The most challenging aspect of translating a book from another language is maintaining the sanctity of the writing, particularly in a book that contains extensive wordplay. The mission is to shape the tone and style of the narrative to be just as sprightly in English as it is in French. The book’s main objective is to handle a social concern in a way that is entertaining for children. An important tool that Sandra Costa uses is the recurrence of homonyms. In order to compensate for the number of puns created by the omnipresent homonyms that we were unable to translate from French to English, we utilized rhyming to restore the playfulness of the text. We will also discuss the cadence and rhythm of the text which required a change in the number of syllables and occasionally meaning altogether to improve word flow.

**Effects of Motor Mimicry on Victim Blaming**
Callista Loutzenhiser
Victim blaming happens when the victim of abusive maltreatment is held responsible for what happened. This study looked at the effects motor mimicry has on victim blaming. Thirty-two participants watched a video of a victim telling her sexual assault story, followed by an online survey designed to find hidden victim blaming attributions. The participants were randomized into two groups, the first mimicked exact hand motions of the victim, and the second group was assigned specific hand motions that did not mirror the victim’s movements. The results indicated that motor mimicry of a victim’s hand movements decreases an individual’s victim blaming tendencies, causing them to feel more empathy towards the target individual. These results also support previous research that found empathy could develop by matching neural responses of an observed individual.

In the Shadow of the White City: The Haitian Building and Black Representation During the 1893 Columbian Exposition
Danielle Lyons
The Columbian Exposition of 1893 was a unique moment in US history. The Fair itself not only cemented the relatively new US as a player on the world stage equal to the older, pedigreed Western European countries in terms of science and industry, but also positioned the US as the new center of innovation and civilization in the Western world. However, the Fair was no bastion of racial equality. A mere twenty-eight years out from the end of the Civil War, and during the nadir of American race relations, representation for minorities at the Fair varied between pseudo-anthropological exhibits that presented them as fading relics or grotesques that appealed to the racist sentiments of the time. Minorities were not silent, however. The Haitian Building, just outside the Court of Honor, became a space for prominent black voices, such as Frederick Douglass, to protest the Fair and advocate for equal rights. My research aims to explore the role the building played in the general experience of the event, as well as provide a broader understanding of the black experience of the World’s Fair, using speeches and pamphlets presented at the fair, as well as biographies and secondary literature.

Bounding the Average Inner and Outer Radial Electron Distances in Atomic Systems Using the One-Electron Probability Density
Phillip Marmorino
There are numerous ways to describe the radial distribution of the N electrons in an atom. The method that we developed in our research concerns electron pairs. There may be many such pairs in an atom, so we focus on a particular pair, and at any given time we denote the electron closer to the nucleus as the inner electron and the more distant electron as the outer electron. From a classical point of view, averaging over a long period of time gives us average inner and outer radii for that particular electron pair and averaging over all possible pairs of electrons gives us average inner and outer radii for the atom as a whole. Computing the exact value of these average radii requires double-integrating the two-electron probability density, which is computationally intensive. Our method avoids this issue by bounding the average inner and outer radii using single integrals of the one-electron probability density, which is much simpler, although not exact. It works by dividing the one-electron probability density into n parts (where n can range from 2 to N), each of which produces an artificial average radius which can be combined linearly to obtain a lower bound to the average inner radius and an upper bound to the average outer radius. To test the effectiveness of our bounds and their dependence on n we performed trials with many different atomic systems for which the two-electron probability density is known, for which the bounds hold and improve as n increases.

Learning What the Lerner Theater Means for the Future: A Revitalization of a Small Town Downtown
Gina Massaro
In the years following the economic downturn of 2008 the US experienced an unprecedented number of revitalization efforts in small towns. One of these revitalization efforts was the Lerner Theater which gave
a starting point to the renaming of downtown Elkhart as the Historical Arts District. My presentation will examine the renovation of the Lerner Theater in Elkhart, Indiana as a representation of the revitalization of downtown Elkhart and how that would apply to other small town downtowns. This paper will draw from several area newspapers to document the process. I will also be using secondary sources of revitalization research and other similar efforts around the country. The revitalization technique is very close to historical preservation and it was widely used creating opportunities to enhance older places within a city and draw more people there. The decision to use the 1920’s version of a long changing history is significant to the idolization of that period within Elkhart showing the main projects of other revitalization efforts represent important times in that small area’s history. This paper will use Elkhart’s history as well as that of the Lerner’s to prove this connection. In all the revitalization of small town downtowns seem to have been successful in recreating a vibrant community. This will allow the history of a place to live on as well as preserve the future generation’s prosperity in small towns. This building is of the past that are being used to shape the future of an entire area.

A Simple Test of Using Powder X-Ray Diffraction to Quantify Calcite to Aragonite Fraction in Carbonate Samples
Skye McDonald
Calcite and aragonite are polymorphs of calcium carbonate, which means that both have the same chemical composition, but different crystalline structures. These two mineral forms of calcium carbonate are used by marine organisms to create hard carbonate skeletons and shells. In this study, X-ray powder diffraction (XRD) was used to distinguish calcite versus aragonite-structured carbonates in synthetic and natural samples. We will present details of our approach and measurements and an overall assessment of the efficacy of these techniques for quantifying the proportion of each phase, as has been discussed in the literature.

天下為公: Social and Economic Role of Chinatown Chicago as a defense against white racism towards Chinese immigrants.
Aaron McGinnis
My presentation will investigate the role of Chinatown Chicago in protecting Chinese immigrants in American society thus providing essential support and cultural identity to the ethnic community that inhabits it. My presentation will include both the historical context that formed Chinatown Chicago, the historical context and role of Chinatown Chicago as an ethnic enclave in the 19th and 20th centuries, and the current role of Chinatown Chicago as a center for economic and social activity for ethnic Chinese Americans and Chinese immigrants. In the United States, Chinese immigrants faced legal discrimination—such as the Chinese Exclusion Act—as well as individual racism and violence carried out against Chinese people, which led to the rise of Chinese ethnic enclaves as a way for Chinese people to protect themselves and gain economic and personal security. Currently, Chinatown Chicago acts as a haven for Chinese speaking people that are at a disadvantage in the US job market where English is the prominent language. Thus, Chinatown Chicago provides a community the shares cultural and linguistic ties, which provides Chinese immigrants much needed opportunities that prejudice in US society would otherwise deny to non-English speaking residents. The future for Chinese immigrants firmly establishes the need for Chinatown Chicago as politically motivated anti-Chinese rhetoric aimed at the PRC sways the US’s opinions of Chinese people. While Chinese anti-immigrant sentiments increases in the US, the need for Chinatown Chicago increases as tariffs and a trade war with the PRC transform into anti-Chinese sentiment toward Chinese Americans and Chinese immigrants.

Are Political News Articles Stressing Us Out?
Marc McElligott
The Internet has introduced new ways of receiving and consuming the news. With a brief visit to social media, everyone can know exactly what is going on in the world whenever they please. However, unless
consumption of negative news on social media is limited, exposure to it will cause depression and anxiety. This study therefore determined whether controversial news articles about politics constitute negative news based on measures of stress. Twelve subjects were divided into two groups and instructed to read either three contentious or three non-contentious news articles about politics from the Fox News, CNN, and MSNBC websites for 10 minutes. Before and after the procedure, subjects measured their heart rates and completed a transient stress assessment questionnaire. The results show that the contentious and non-contentious news articles are not significant predictors of faster heart rates and heightened levels of self-reported stress. Reading Internet news articles about politics is unlikely to exacerbate existing stress or create new stress.

**Translation of Pun filled French Kamishibai Crapauds sur le pot into English**

*Eva Monhaut and Hannah Shank*

We will present our English translation of Crapauds sur le pot, a kamishibai by Jean-Michael Zurletti, who is a French author and illustrator. Zurletti is known for children's stories focusing on cleanliness and child development. The story is a pun-filled story about toads using the potty. The book can be characterized as a playful tale written in a predominantly humorous tone. Puns, jokes, and humor are complex to translate. Humor is closely related to culture and what we find humorous may vary drastically between two cultures. Furthermore, it is particularly challenging to translate different voices for characters. In this text the main characters are the toads and the hippos. The hippos have a more mocking voice in contrast to the innocent voices of the toads. Translating these differing voices was complex because we had to remain accurate in our translation but also convey emotion. Lastly, we had to find a balance between the rhythm of the original text and there is a necessary balance in translation between remaining loyal the rhythm of the original text and story while trying to plicate certain sounds in English. Translation is a creative process in this way. We faced the challenge of taking French sounds which mimicked the sound of a child using the bathroom and rhythmed with pot and trying to carry that over into English as well. We had to create new terms based upon onomatopoeic sounds to convey the same meaning in English and simultaneously carry the tone of French text over.

**The Translation of Rhymes in , Le Pomme et le Hérisson**

*William Myers, Adam Lein and Leroy Holliday*

We will be presenting on the book, Le Pomme et le Hérisson. The book was written by Jean Michel Zurletti and illustrated by Satuski Noma. The story, Le Pomme et le Hérisson, is about a hedgehog who has an apple fall on his back, while the hedgehog is under an apple tree. The hedgehog travels with the apple on his back, and eventually a bird eats the apple. When the hedgehog comes back to the same spot a few years later, the bird must have spat out the seeds, because a new apple tree has grown. Translating rhymes is a well-known challenge in the world of literary translation: how can the translator capture the cadence text when he operates in a target language featuring words and stress patterns that differ from the original language? The translator then has to wonder: how do rhymes affect the text and how am I to recreate that effect? Just translate the words as they are and not have them rhyme is simply not an option, not in a playful book addressed to children where the musicality of the text is part of its inherent meaning. Finally, we will demonstrate how the book has evolved as it was translated.

**The Modern Perception of The Chicago World’s Fair and the Incomplete Representation Found of the Contemporary Novel, The Devil in the White City: Murder, Magic, and Madness at the Fair that Changed America**

*Kaylee Oatman*

This paper will examine the potential impact of the ideological messages and contemporary representation of Erik Larson’s novel, The Devil in the White City: Murder, Magic, and Madness at the Fair that Changed America, through the analysis of The Chicago World’s Fair and how the text emphasizes neoclassicalism’s brilliance while also ironically bringing attention to the concept of delusion. In this text, the reader might establish a connection between the architect, Daniel H. Burnham and the
doctor turned serial killer, H. H. Holmes. Both of these characters seek power through recognition and the accumulation of wealth in different ways while creating architecture that exceeds the imagination at the time of The Chicago World’s Fair. This text showcases the glorification of delusion through its character’s willingness to accept delusions as well as the façade of The Chicago World’s Fair through its architecture. The Devil in the White City, is a delusion in and of itself by glossing over the grim but important aspects of the fair that were very much a part of its foundation, such as the degrading exhibitions that put ethnic groups and its culture on display which my secondary sources will shed light on. In addition, Burnham and Holmes, as characters, impact and feed off the fallacies of the ideological messages that they present seemingly as the novel greatly impacts the minds of those who read it leaving them with an incomplete representation of what happened at the fair.

**Identifying Ideological Presentations: An Analysis of Modern Museum Display Politics**

*Sarah Paeplow*

My presentation will explore the complexities of a museum curator’s responsibility to accurately reflect history while recognizing and wrestling with any personal bias or preconceived ideological notions of his or her subject matter. Each curator, having a unique cultural upbringing and educational background, carries within him or her a predisposed view, or bias—whether latent or deliberate—which has cultivated an individual viewpoint of a subject. Such a viewpoint, whether thought of as positive, negative, or otherwise, can manifest throughout the curation process of a display. My presentation will focus on the curation, design, and execution of the ancient Egypt wing of The Field Museum in Chicago, IL. This wing of the museum displays ancient artifacts, including tools, weaponry, and stylized depictions of the ancient Egyptian population. Yet in an age when the country of Egypt, and its geographic location, carries somewhat negative connotations for the American majority, one can wonder if the curation team of this growing exhibit faced difficulties separating their own ideological assumptions or personal biases with their job at hand: to display an accurate, historically preserved glimpse at a once-revered cultural dynasty.

**Ambiguity by Design: Interactions of Realism and Naturalism in Paul Laurence Dunbar’s The Sport of the Gods**

*Nick Pappas*

I will analyze Paul Laurence Dunbar’s use of naturalism (subgenre) and realism (genre) in The Sport of the Gods as it pertains to establishing calculated ideological inconsistencies. What concerns Dunbar is the plight of African Americans and the pernicious effects that their environment has on their spiritual and moral well-being. However, the interplay of the subgenre and the genre assesses African American suffering in contradictory ways. Through realism, Dunbar represents African Americans as victims of social tactics that sanction lawful injustices (e.g., wrongful convictions, ill-treatment based on race, oppression, etc.). Conversely through naturalism, Dunbar advances sociological assumptions that are detrimental to social progress (e.g., the inability of African Americans to assimilate to the demands of a big city, Social Darwinism, degradation, etc.). These inconsistencies, however, are intentional. Dunbar’s proficiency in genre demonstrates his knowledge of the socio-political circumstances that he was up against. An ideological smokescreen was necessary for Dunbar in his efforts to challenge racialized expression (minstrel shows, plantation romanticism). Dunbar is savvy in his literary maneuvering, covertly critiquing and delegitimizing prejudicial beliefs. Although events that occur in Sport of the Gods appear insufficient in terms of discrediting racial injustice, it is through Dunbar’s agency as a novelist that enables him to criticize a false, discriminatory ideology. Interactions of realism and naturalism factor into Dunbar’s strategy of representing social progress as a somewhat clumsy process in which ideological differences undergo a kind of dialectic in order for us to shed our prejudices and remedy racial injustices that society normalizes.

**Development of Political Attitudes**

*Rene Pintal*
Political attitudes are both a popular and a divisive topic today. Previous studies attempted to pin down what causes political attitudes to develop, with leading theories being childhood personality traits, parenting styles, and biological factors. I sought to examine what personal events could cause these attitudes to develop. Conducting interviews with two adult individuals, one from each political party, I asked them questions regarding their childhood and upbringing, their families, and how their political views developed throughout their lives. The interviews suggest that political attitudes are largely reactionary and develop as a person experiences events throughout their lives, such as the immense social change and upheaval seen during both the 1960s and the current era. This development begins in their childhood but does not reach fruition until their college years and later. These results suggest that political attitudes may change throughout a person’s life, often as a reaction to the world around them. These results may also explain the recent presidential election and the heated political climate today.

**Complex Choices and Why You Won’t Like Them**

*David Pugh*

As an art form, games are compelling because they allow for the observer to become the player, taking an active role in the narrative that is being presented. However, the video game industry is still relatively young and has not yet been analyzed to the depth that other art forms have. To investigate the effect a player’s interaction with the game’s story has on enjoyment of the game, I analyzed games released in 2018 for how much they were found to be enjoyable compared to how narratively complex they were. The player’s enjoyment of a game has been averaged from review scores of both experts and novices, while a game’s complexity has been determined by the number of opportunities the player has to impact the direction of the narrative. While games with low-level complexity were more preferred than games with high-level complexity; the results of the study point toward games with mid-level complexity being the most preferred. The significance of this is that games without narrative comply were likely found to be enjoyable for their linear narratives, while games with too much narrative complexity were overwhelming. Alternatively, games with too much narrative complexity may have left the gameplay itself simplistic to the point of being uninteresting.

**The Effect of Mood on Cognitive Functions Localized in the Prefrontal Cortex: Verbal Fluency and Working Memory**

*Hannah Quinn*

There is a growing body of literature exploring the connection between Depression and Frontal Asymmetry, in brain activity. Research has indicated that negative mood is associated with increased right frontal lobe activity and positive mood with left frontal lobe activity. However, few studies have investigated whether or not frontal asymmetry is directly related to the cognitive functions associated with the left and right frontal lobes. The present study tested the hypothesis that negative mood would be associated with improved Working Memory and impaired Verbal Fluency, while positive mood would have the opposite effect. Participants were randomly assigned to watch a video clip to induce either positive mood, negative mood, or a neutral mood. Then, participants completed an adapted n-back task (3-back) to assess Working Memory and completed a letter fluency task to assess Verbal Fluency. The implications of this study, including implications for the treatment and detection of depression and for Affective Neuroscience research will be discussed.

**Canine Training Methods: Will a Dog be Able to Discriminate Between Various Colors or Between Various Shapes More Effectively?**

*Cassandra Reyes*

The present study was conducted in order to discern whether color variables or shape variables would be most identifiable for a single dog (canis familiaris) subject. A subject was trained through various stages to identify individual color variables (blue, grey, brown, yellow) as well as individual shape variables (square, triangle, star, circle). The subject was then finally trained to discriminate between variables within the two categories of variables. Measurements included time spent training, the number of
commands that were given, the number of corrections that were given, the number of displacement behaviors displayed by the subject, and the number of breaks taken. Implications for training service animals will be discussed.

**Political Affiliation and Word Usage**  
*Sandra Ridge*

Differing political views can lead to different ways of thinking about the world. It is thought that political conservatives prefer that circumstances do not change; they favor the status quo. This would indicate that they are focused on the past. It is also thought that liberals tend to favor change. This indicates that they focus on the future. Because of this, I hypothesize that conservatives use more past tense verbs, and liberals use more future tense verbs. Conservatives also like to structure and certainty; this would lead to conservative using more nouns, and liberals using more adjectives. In my study, I chose articles written in known conservative and liberal online media outlets. The articles were all editorial in nature describing an alleged confrontation in January 2019 between high school boys from Covington, Kentucky and a Native American activist, Nathan Philips. I converted the articles to PDF files and then into text files and analyzed them in software that counts words (LIWC and POSTModern). Results show that there is no discernible difference between liberal and conservative noun and adjective use, but nouns are used more in general. Results also indicate that, in fact, liberals use more past-tense verbs than conservatives. Implications for mass media and political views will be discussed.

**Jewish Women, New Women: The Complexity of Jewish Identity in German-speaking Central Europe**  
*Sydney Rohr*

Dr. Zwicker's article, "Women of Jewish Descent and Marriage in Nineteenth and Twentieth-Century German-speaking Central Europe," compares 500 accomplished women, 250 of Jewish descent and 250 of non-Jewish descent, showing distinctive marriage patterns between the two groups. In her most recent review, the reviewers were interested in knowing more about the women of Jewish descent's relationship to their Jewish Identity. My research into this relationship consists of the first 125 women (A-Koh) on our list. When we began this research, we started with broad categories [Baptized, Converted, Assimilated/Secular, Konfessionslos, Jewish observant]. We later realized that these categories did not represent the complexity of Jewish Identity. Using women from my research, my paper explores this complexity and the challenges we have come across during our research.

**Kohn and The Grading System: Evaluating the Use of Grades as Rewards to Motivate Students**  
*Colleen Scarborough*

This paper examines the role that the grading system has within U.S. schools, both at the grade-school level and college level. Many literary scholars such as Alfie Kohn argue that grades as a means of motivating students to do excellent work in school is actually hindering their creativity, while also stifling group cooperation. Quantitative experimental research in the field of psychology also suggests that grades in the form of extrinsic rewards is negatively impacting a child’s motivation to do good in school. This research, along with scholars voicing their opinions, has pushed some schools to implement alternative solutions to the grading system. My paper will address whether these new no-grade solutions are effective or not. Thus far, the evidence seems to suggest that grades are doing more harm than good. I have gathered my secondary sources through online databases such as EBSCOhost, and reports from online newspapers. In addition, my paper will intertwine my personal experiences with the grading system and the proposed theories in order to draw connections between my own experiences, which others might relate to, and what professional scholars have said.

**Expression and Purification of Adenosine Deaminase and Mutants Associated with Severe Combined Immune Deficiency**  
*Caitlin Schulz, Ahmad Alsahfi, Sayvon S. Esper, Winnie A. Ihano, Anna R. McBeth, & Hunter A. Richman*
Severe combined immune deficiency (SCID) is caused by mutation in adenosine deaminase (ADA). ADA is an enzyme that converts adenosine to inosine as part of the purine degradation pathway. Loss of ADA function leads to accumulation of adenosine, which leads to inhibition of B- and T-cell immune function. Here, we expressed and purified the wild type ADA (wtADA) in an E. coli expression system. We used enzyme kinetics to measure the activity of the wtADA using a colorometric assay by monitoring the disappearance of adenosine at 265nm. A hyperbolic kinetics curve was observed, characteristic of Michaelis-Menten kinetics. Expression of three ADA mutants was also attempted: P104L, G216R and H15D, all of which are known to be found in individuals with SCID. Of the three mutants, P104L and G216R showed no expression, whereas H15D was successfully expressed. However, H15D precipitated following expression. Further experiments are needed to optimize the expression conditions for the ADA mutants. Successful expression of the mutants will allow characterization of the molecular basis of disease and may provide options for treatment or management of SCID.

The Cold War and the Space Race of the 1960s: from Sputnik to Apollo 11
William Spalding
The Soviet Union (USSR) launched Sputnik, the first artificial Earth satellite, in 1957, initiating the Space Race between the US and the USSR. When President John F. Kennedy took office on January 20, 1961, he spoke of a "New Frontier," meaning we would put a man on the moon by the end of the decade. Sure enough, on July 20, 1969, Neil Armstrong became the first man to set foot on the moon, and he said, "This is one small step for man, one giant leap for mankind."

Morphological Comparisons of the Hominids
Karley Spriggs
The Hominids have many postcranial morphological similarities to Homo sapiens. Looking at the facial-cranial bones of these hominids may introduce other new insights into more similarities between these early human ancestors and us. Focusing on the "gracile" early humans, new techniques can be used to determine these similarities and possibly differences. This question will help demonstrate whether in humans and their ancestors, the cranium or the postcranial morphologies had evolved to be "most human" first.

Local Historical Sites of Potawatomi's Leaders in Indiana
Elisa Vanett
My research project focuses on the historical sites concerning the local Band of Potawatomi’s past leaders. Current public memory regarding the tragic history of the Pokagon Band of Potawatomi and The Trail of Death is synonymous with an “out of site out of mind” mentality. My methods for investigating this topic include going to the Memorial of Chief Menominee and studying his burial site via texts (it is located in Kansas), visiting the burial site of Chief Leopold Pokagon, and also comparing their memorial/burial sites with the Catholic priest Father Benjamin Petit who walked beside the Potawatomi on the Trail of Death in 1838. The local sites of important tribal leaders like Chief Leopold Pokagon and the Memorial of Chief Menominee are greatly under-acknowledged pieces of important local history unique to the South Bend, Michiana, and Indiana area. I expect to find through my analysis of these sites varying degrees of obscurity within a historical context: truths, half-truths, and hidden.

Using Powder X-Ray Diffraction to Identify and Characterize Magnetic Minerals in Lake-Bed Sediments In Conjunction with a Magnetostratigraphic Study of Turlock Lake, California
Shwetha Vittal
This project is in collaboration with geologists at California State University Fresno who are trying to determine the age of Irvingtonian fossils by the orientation of magnetic minerals in the rocks from the site of Turlock Lake; this method is referred to as magnetostratigraphy, and it has been proven to be an effective technique for dating fossils with igneous rocks. The rocks from Turlock Lake are sedimentary, rather than igneous, however, and this poses an additional challenge because magnetic alignment of
ferrous minerals during sediment settling is less effective than is alignment during crystallization of a magma or lava. Our contribution to this project is to identify the magnetic minerals found in the sedimentary rock samples, and we are using powder X-ray diffraction to accomplish this. As an additional complication, the samples contain very small traces of magnetic minerals, so we used some techniques to separate them from the bulk rock using magnets. The diffraction data from the magnetic minerals showed traces of maghemite, which is a relatively common iron oxide. Further work involves getting more refined diffraction data and performing heating experiments to determine if structural phase transformations are likely to be encountered within the temperature range that will be used as part of the magnetostratigraphic analysis by our collaborators.

Dark Matter Acoustics
Nathan Walkowski
The Research I did during the summer was in the IUSB Dark Matter lab, working in collaboration with PICO. PICO is attempting to make a direct detection of Dark matter, which makes up 85% of the mass in the universe. For how significant Dark matter is we know very little about it. Currently there are many different Theories for what Dark matter could be and many groups testing those theories. PICO is searching for Weakly Interacting Massive Particles or WIMPs. WIMPs are a candidate for dark matter and a key feature of WIMPs is that they interact with the weak nuclear force, using this PICO has constructed Bubble chambers were nuclear recoils can be seen and measured, using acoustic transducers. These acoustic transducers are pivotal in determining what event caused a bubble to form. The acoustic transducers used on PICO are made in the IUSB Dark Matter lab, The IUSB lab also does research to improve our transducers to make them more sensitive and less radioactive. The research I did was to increase the sensitivity of the Piezoelectric element that we use inside the transducer. I tested the effects of transducer orientation inversion and the effects of piezo stacks. To get results I built several test transducers and tested their acoustic properties. From my research we have found that Piezo orientation inversion can shift the sensitive peaks into lower frequency ranges. The Piezo stacks under preformed in sensitivity across all ranges, compared to their Monolithic counterparts.

The Black Cat: An Analysis of Black Cowboys and How They Fit Into a White Cowboy West
Joseph Walls
My presentation will examine and compare how the idea of the Cowboy has evolved over time. I will be comparing the progenitor symbol of the White Cowboy as represented by The Virginian and how the symbol of the African American Cowboy, in the form of Blazing Saddles, and how it fits into the almost Mono White vision of the Wild West. I will argue that although African American’s are represented in Western genre media often they’re presented as a secondary role in comparison to the often White protagonist. I will also compare how “The Virginian” and “Blazing Saddles” navigate racial tensions with their protagonist. Overall this presentation will show how representation in media is important in all genres, including Westerns, because it is through media that the younger generation finds its own heroes, inspirations, and identities.

Antimicrobial Use and Extraction of Essential Oils
Julie Webster
With the growing popularity of alternative medicine, essential oils have become commonplace in the American home. Diffusers pump the oils into the air, some use them as cleaning products, and some parents prescribe them for their children’s headaches. In a world searching for new medications with the ability to fight antibiotic-resistant bacteria, the general acceptance of essential oils inspired many to turn to them as the next solution. This research project investigates the antibacterial properties of two essential oils – basil and lavender – and how extraction technique influences their use as antimicrobial agents. By measuring the zones of inhibition of each oil against both gram-positive and gram-negative bacteria as well as bacteria that naturally occurs on the skin, we were able to measure the effectiveness of these oils in defending against bacteria like S. epidermis and S. pneumoniae. An initial Kirby-Bauer Disk Diffusion
Test revealed that the oils extracted with a Clevenger apparatus worked as the best inhibitors. To obtain accurate results, however, we needed to account for the oils’ varying viscosities and concentrations; if the hydrosols were thicker than the oils extracted with the Clevenger apparatus, it makes sense that they would inhibit less bacterial growth since they wouldn’t be able to spread through the bacteria or yeast as effectively. Further research will include verifying concentration with a spectrophotometer and creating plates of agar infused with the essential oils to grow the bacteria atop in an effort to create an accurate picture of the antimicrobial properties of these oils.

Remembering Hiroshima: Why are details of the Hiroshima Bombing Sheltered from Americans?
Christian Yoder
For my presentation I am focusing on the 1945 Hiroshima bombing. I was interested in the difference of how the event is remembered in American museums versus Japanese museums. The two exhibits I’m going to focus on are the National Air and Space Museum in Washington D.C. and the Hiroshima Peace Memorial in Hiroshima, Japan. The information in the Japanese exhibit isn’t as sheltered from the general public as the one in Washington D.C. The National Air and Space Museum’s exhibit has created a good amount of controversy. The central focus in the D.C. exhibit displays the B-29 Bomber “Enola Gay” that dropped the bomb on Hiroshima. The exhibit has created controversy in the past with what the exhibit is choosing to memorialize. Doing further research on the event from an American viewpoint I’ve discovered how sheltered details about radiation from the event are from Americans. I plan on doing my research using the two exhibitions, and secondary sources focusing on the exhibit at the National Air and Space Museum and the event itself. In the days following the bombings American officials like the Office of Censorship were limiting what information media and news outlets could be disclosed and what needed to be suppressed until a later date. Through my research I hope to have a better understanding of why the event is so sheltered in American history and if there is a specific reason why it is.

Conformity and Church Beliefs: Predictors of Christian Attitudes Toward Gay and Lesbian People
Taylor Yoder
There is a significant body of evidence that has investigated attitudes toward people who identify as gay and lesbian amongst a variety of people from religious groups, ranging from liberal to conservative. However, there is a lack of research that includes conformity as a potential correlate to their attitudes. This study examined the relationship between the tendency to conform and attitudes toward those who identify as gay or lesbian amongst Christians. Sixty-three individuals who identify as church-going Christians took two surveys, the Concern for Appropriateness Scale (Lennox & Wolfe, 1984) and The English Version of the Attitudes Toward Homosexuality Scale (Anderson, Koc, & Falomir-Pichastor, 2018), as well as answered several questions regarding their church’s position on gay and lesbian people. The results showed that the relationship between tendency to conform and attitudes of churches was statistically significant. While conformity alone does not predict attitudes of individuals, a higher tendency to conform and knowledge of church attitudes does.

Cannabis and Inflammation
Jordan Zaderej
The therapeutic benefits associated with cannabis use in remedial doses may be linked with preventive and restorative properties. Diet, obesity and inflammation with specific consideration involving the Omega3 and Omega6 metabolic mechanisms suggest potential reversal properties within the endocannabinoid system. The basic functionality of the endocannabinoid system is well understood. It is not, however, inferred as to the degree in which these phenomena are correlated. There is significant evidence suggesting therapeutic preventative and restorative properties related to inflammation correlated with cannabis use. The inflammation response is associated with most chronic disease processes such as obesity, Alzheimer’s disease and autoimmune disorders. It seems there are links between the functionality of the endocannabinoid system in relation to the metabolic process involved in using and storing Omega 6’s.
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