

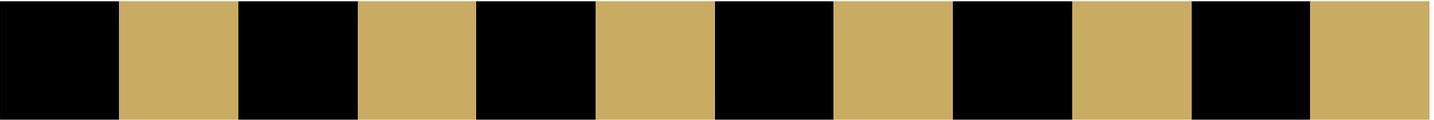
Class of 2013

**SENIOR RESEARCH
SYMPOSIUM**



*A Celebration of
Independent Study*

Abstract Book



Senior Research Symposium is supported by the Henry J. Copeland Fund for Independent Study

Schedule

9—11	Digital I.S. Exhibit*	CoRE in Andrews Library
9—10	Oral Presentation Session I	
	Feminist Explorations	APEX in Gault Library
	Athletics	Kauke 038
	Education & Inequality	Kauke 305
	Music through French Inspirations	Scheide Music Center 106
	Medicine & Health Care	Severance 009
	Environmental Awareness	Taylor 110
	Examining Women in the Arts	Taylor 111
	Environmental IS Prize Winners	Wishart Lean Lecture Room
	Symbols of Inequality	Wishart 101
9—11	Poster Session I*	
	Communication Studies, Communication Sciences & Disorders, and Psychology	Freedlander Theatre Lobby & Wishart First Floor
	English and Women's, Gender, & Sexuality Studies	Gault Library for Independent Study
	Anthropology	Kauke 238
	Political Science	Kauke Second Floor Lobby
	Biology	Taylor 2nd Floor & Digital Media Lab
	Mathematics and Computer Science	Taylor Third Floor
10—11	Oral Presentation Session II	
	Cultural Identity	APEX in Gault Library
	Historic Conflict	Kauke 038
	Development of Gender Roles	Kauke 305
	Science & Public Policy	Severance 009
	Animal Behavior	Taylor 110
	Narrative Engagement	Taylor 111
	Highlight on Copeland Funding	Wishart Lean Lecture Room

10—11	Music Performance & Therapy	Scheide Music Center Gault Recital Hall
11—12	Student/Faculty Collaborations	
		CoRE Cube in Andrews Library
		Severance 009
		Wishart Lean Lecture Room
1—2	Dance & Theatre Performances	Schoolroy Theatre in Freedlander
1—3	Studio Art & Art History Exhibit	Sussel Gallery in CWAM
1—2	Oral Presentation Session III	
	An Exploration of Space	APEX in Gault Library
	Developing Nations	CoRE Cube in Andrews Library
	Food & Culture	Kauke 038
	China's Affairs	Kauke 305
	Transformations in Poetry	Severance 009
	Memoirs of Growing Up	Taylor 110
	Why Are We Perceived the Way We Are?	Taylor 111
	Inspired by Off-Campus Study	Wishart Lean Lecture Room
1—3	Poster Session II*	
	Economics, International Relations, Neuroscience, Psychology, and Spanish	Freedlander Theatre Lobby & Wishart First Floor
	Sociology and Urban Studies	Kauke 238
	History	Kauke Second Floor Lobby
	Chemistry and Biochemistry & Molecular Biology	Severance Ground, 1st & 2nd Floors
	Physics	Taylor First Floor
	Biology	Taylor 2nd Floor & Digital Media Lab
	Geology	Writing Center in Andrews Library

Globalization	APEX in Gault Library
Changing Religious Views	CoRE Cube in Andrews Library
Heroes & Utopias	Kauke 038
Changing China	Kauke 305
Surviving Societal Marriage	Severance 009
Defining Self Through History	Taylor 110
Tragedy, Pain, & Trauma	Taylor 111
Inspired by Off-Campus Study Continued	Wishart Lean Lecture Room

with guest speaker Drew E. VandeCreek '86 Freedlander Theatre

**Will be displayed for viewing from 9 to 4, students will be present at listed times.*

Appetizers will be available in the presentation halls from 1 to 3.

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Theresa Albon

9:00 - 11:00 a.m.

Taylor Third Floor

1:00 - 3:00 p.m.

Taylor First Floor

Mathematics and Physics Double Major

Advisor: R. Drew Pasteur and Shila Garg

The Entanglement and Relaxation of Liquid Crystal Shaped Granular Media

An experiment was created to analyze how entangled rod, V, H, and U shaped wires collapsed when exposed to varying sinusoidal accelerations. Two distinct phases of collapse were found: an initial phase when the wires collapsed from a cylindrical structure to a pile, and a second phase where the pile of wires dissipated off of the platform. The U-shaped wires displayed the greatest degree of entanglement. A computer simulation was written to analyze the entanglement and relaxation of rods, similar to the experimental portion of the research. The same two phases were found during the collapse of the rods in the simulation. The rods in the simulation also aligned themselves perpendicular to the base of the platform, resulting in a tight packing formation. This was also observed in the experiment. Characteristics of how the wires behaved under these conditions provide insight on how liquid crystal molecules behave.

Stefano Alianelli

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Hayden Schilling

*"Klotzen, Nicht Kleckern!" (Strike Together, Not Divided!)
The Panzer Divisions as New Dominating Strategy of Modern Warfare.*

The opening years of the Second World War were traversed by a revolutionary military strategy embodied in the German Panzer divisions which, through concentrated attacks, combined mobility and firepower to overwhelm the enemy defense. Developed by General Heinz Guderian, the Panzer divisions combined different mechanized weapons to cripple any defenses as they took the role of spearheading the attack.

John Angelo

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: John Ramsay

Predictive Analytics on First Year Retention at The College of Wooster

The mathematics behind two statistical methods used for prediction are developed: principal component analysis and naive Bayesian classifier. Principal component analysis uses variables from a data set to create a smaller number of new, uncorrelated variables. The naive Bayesian classifier method predicts which class each sample in a data set belongs to based on an independence assumption, conditional probabilities, and Bayes' theorem. To illustrate each method we implement to predict first year retention for College of Wooster students. The data from College of Wooster students is used to show how the methods are implemented and how results from each method are analyzed.

Olivia Aspiras

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Gary Gillund

BIS/BAS, Need for Cognition, and the Framing Effect: Increasing Intentions to Read Before Class

The purpose of this study was to examine how personality traits interact with the framing effect to promote better studying habits among college students. Participants completed the Need for Cognition and the BIS/BAS scales and then read either a positively or negatively framed article about the importance of reading before class. Participants then completed the Intention to Read Questionnaire to measure future intentions to read before class. Results showed no significant framing effect. However, participants high on Need for Cognition (NFC) recalled significantly more of the reasons to read before from either article than those with low NFC. Participants categorized as the BIS with a high NFC had significantly greater intentions to read before class after reading either article. Several other consistent patterns regarding the BIS/BAS emerged. Participants overall reported that they intend to read more often before class than they currently do after reading either article.

Daniel Axe

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Susan Lehman

Effect's of Temperature on the Expansion Force of Osorb

Osorb is an organosilicate material developed at the College of Wooster. It absorbs non-polar and organic compounds, but is hydrophobic and does not absorb water. During absorption, Osorb has been shown to swell up to eight times its original size while exerting tremendous forces, measured over 500 N. In this research, the force of expansion of Osorb was tested at different temperatures to observe its effects on the characteristic relationships found in previous work. An apparatus that measures the expansion force at controlled volumes was improved to reduce sample loss and increase sample saturation. Another apparatus was found to test Osorb's reaction to organic compounds diffused in gas phase, but required replacement parts and needed to be reconstructed. The two apparatuses were tested at 22 and 40 degrees Celsius. No usable data could be collected from the vapor apparatus, but the results from the liquid apparatus were analyzed. An unforeseen extra variable limited the number of reproduced trials for analysis, and no definite trends could be found.

Baba Badji

1:00 p.m.

Severance 009

English and French Double Major

Advisor: Daniel Bourne and Carolyn Durham

Memories Of A Senegalese Boy / Souvenirs d'un fils Sénégalais

My senior thesis is a body of poems written in English and French. My poetry is a process of exploration of my past memories and a discovery of themes such as: my African identity, my American identity, my nostalgia about Senegal, and my complex upbringing. I do hope that through my poetry I will be able to talk about how I am a beneficiary of four

powerful cultures: Muslim, Senegalese, American, and French. I hope these reflections would help my readers understand these cultures along with the more personal theme for example my complex background makes me question my own cultural identity. The name of my manuscript is 'Memories Of A Senegalese Boy / Souvenirs d'un fils Sénégalais'

Zoe Baker

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Angela Bos

Women and the Election: an Examination of Mortality Salience on Candidate Gender Preference

This study examines the effect of mortality salience and terror management theory on candidate gender preference in a congressional election. An experiment was conducted using MTurk run by Amazon.com. The survey incorporated a mortality salience prompt and used news articles that had varying the degrees of agentic and communal qualities for the female candidate. The experimental results suggest that while voters are more likely to support the female candidate from this experiment and view her more favorably than the masculine candidate, when respondents were asked to vote for a candidate the male candidate received more votes. The findings from this study support my hypothesis that that due to mortality salience voters view female congressional candidates less favorably because a female candidate is perceived to be less competent at handling masculine issues.

Maria Ballentine

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Donald Goldberg

Professional Perceptions of Auditory Rehabilitation Specialists Regarding Which Components of Music Training Programs Designed for Adult Cochlear Implant Recipients Are Most Effective in Improving Music Enjoyment

This research sought to determine which components of music training programs designed for cochlear implant (CI) recipients were perceived by auditory rehabilitation (AR) specialists as most effective in improving music enjoyment. The researcher analyzed music training programs from major cochlear implant companies, and compiled a list of specific components that make up each program. The researcher created a survey with Likert-type questions rating the perceived effectiveness of each component, without identifying which program(s) the components are from. Results of the study found that the AR specialists perceived the following components of music training programs as most important: familiar melodies as stimuli, instrument discrimination tasks, real songs as stimuli, lyric identification tasks, timbre descriptions, hierarchical levels, and the inclusion of a charting feature. The HOPE Notes program contained the greatest number of components perceived as most effective.

Karin Barend

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Studio Art Major

Advisor: Marina Mangubi

Tussen Droom en Werkelijkheid

Tussen Droom en Werkelijkheid is an artistic interpretation of fantasy fairytale images which question my socio-cultural experiences as an immigrant. My images reflect the collaboration between myself as an artist and writer Megan NoÃ«l Wilber. The process of this independent study was accomplished through the act of creating prints from characters who inhabit the fantasy world of Abinasia. Researching the meaning and interpretation of fairytales while simultaneously looking at works by printmakers assisted my progress in creating prints. My method includes my choice of wood, copper and zinc plates to create my images through the printmaking processes of relief and intaglio. My final product is an exhibition of prints that explore and articulate the sociological situations of an immigrant. My prints encourage viewers to engage and think about using fantasy settings to explore cultural differences. My process of printmaking enabled me to create images representing my artistic expression of Abinasia.

Brittany Begres

9:30 a.m.

Severance 009

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Biochemistry & Molecular Biology Major

Advisor: Dean Fraga

Phosphagen Kinases as a Chemotherapeutic Drug Target for Parasitic Disease Management

Phosphagen kinases are a family of enzymes that catalyze the reversible transfer of a high-energy gamma phosphate from ATP to a guanidino acceptor molecule and recently have been proposed as a potential chemotherapeutic drug target in certain pathogens or pests. In this study, two novel fused dimer taurocyamine kinases (TK) from the human parasitic flukes *Schistosoma japonicum* (SjTK) and *Clonorchis sinensis* (CsTK) and their N and C terminus domains were studied to determine their suitability as pharmaceutical targets. ³¹P-NMR demonstrated that SjTK, CsTK, and the N and C terminus domains are capable of catalyzing the PK reaction using taurocyamine, glycoxyamine, or arginine. Additionally, isothermal titration calorimetry was used to characterize the kinetic constants of SjTK reacting with taurocyamine, and it was found that the enzyme demonstrates the atypical behavior of substrate inhibition with both ATP and taurocyamine. These results support SjTK and CsTK as potential drug targets for disease management.

Erin Behn

11:00 a.m.

Lean Lecture Room

Psychology Major

Advisor: Susan Clayton

The Call of the Wild (and the Caged): The Impact of a Zoo's Exhibition Styles on the Attitudes of its Human Visitors

Modern zoos provide many visitors with the only direct interaction possible with many non-human species. Zoos can uniquely present conservation messaging in an animal-relevant context, but questions remain regarding how the presentation of captive animals influences human perception. The purpose of this research was to increase understanding of how exhibit naturalism may influence observer affective response and attitudes towards a species on display. Visitors to the Chicago Zoological Society's Brookfield Zoo were surveyed throughout the summer of 2012 while viewing one of three exhibits featuring varying degrees of naturalism. Analysis supports the existence of significant relationships between location, satisfaction, affective response, and attitude towards a species. Well-constructed habitats that effectively

represent the needs of particular species to a wide audience may help create zoos that function as positive learning environments for all visitors.

Liz Benckart

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Joan Furey

A Comparison of the Frequency of Print-Focused Strategies Implemented by Preschool Teachers During Story Time Reading Across Classroom Type and Book Type

The purpose of this study was to examine how preschool teachers read to their classes during story time comparing two types of classrooms (classrooms for children at-risk for developing literacy delays and classrooms for children not at-risk) and two types of books (alphabet and picture). The researcher videotaped eight preschool teachers reading two books to their class. She then transcribed and coded the videos and tallied the total number of print-focused and picture-focused strategies used by each teacher. Print-focused strategies did not differ by classroom type. However, teachers in at-risk classrooms produced more picture-focused strategies when reading. In addition, alphabet books prompted teachers to produce more print-focused strategies than picture books.

Loni Ben-Zvi

9:00 a.m.

APEX in Gault Library

English Major

Advisor: Katharine Beutner

Route 28

Route 28 is a linked collection of short stories, which includes a critical reflection on the writing process. The stories are about five connected women of all different ages who are highlighted in at least two stories. Age is a guiding force within each character's story as each is based on perceptions of what life is like at their respective ages through a young woman's perspective. Their ages range from twenty-two years old to sixty-two years old and they connected through shared relationships with other characters, but also through the collection's setting in Pittsburgh and their own personal struggles. No matter what their age, each character is going through some kind of change in their life that is leading to a personal struggle. Though not all of these stories end with the most satisfying closure, the collection ends with a message that things may get difficult, but it gets easier.

Andrew Blaikie

1:00 - 3:00 p.m.

Taylor First Floor

Physics and Mathematics Double Major

Advisor: John Lindner and R. Drew Pasteur

Study of the Gravitational Interaction Between Two Line Masses

The // body problem (slash-slash) is the study of the gravitational interaction between 2 extended line masses. The topic of this thesis is the study of the planar // body problem, where the universe is restricted to a plane. The analysis is performed using completely classical methods. The potential and kinetic energies are derived in the center of mass frame using polar coordinates. Geometric vectors are used to radically simplify the equations of motion. The equations of motion are shown

to reduce to the Newtonian 2 body problem in the appropriate limits. Three classes of periodic orbits are solved exactly and one class is believed to be stable. Escape, which is not possible in the Newtonian 2 body problem, is observed in the planar // body problem. Using parameter space plots we found that the gravity gradient orbit generates a valley of stability around its theoretical curve.

Daisy Bledsoe-Herring

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Jeffrey Lantis

Arming the Homeland: Ethnic Interest Group Influence on U.S. Arms Sales

This Independent Study is an examination of the influence of ethnic interest groups in the United States on U.S. foreign policy. Specifically, this study tests the ability of ethnic interest groups to influence arms sales from the U.S. to the Middle East. Two case studies are conducted in order to determine interest group influence. The first is the proposed sale in 2008 of Joint Direct Attack Munitions to Saudi Arabia, and the efforts of the American Israel Public Affairs Committee to stop the sale. The second case examines the Armenian National Committee of America's attempts to halt the transfer of three U.S. Super Cobra attack helicopters to Turkey in 2011. Using theory and literature on interest groups, this study evaluates the efforts of these two organizations in influencing the outcome of the arms sales.

Sarah Blosser

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Nicholas Shaw

Towards the Synthesis of Hairpin Polyamide-FRET Conjugates

DNA minor groove binding hairpin polyamide ligands have been the focus of DNA groove binding research for their ability to bind DNA in high affinity and specificity. Due to this ability, this thesis proposes that hairpin polyamides in combination with FRET spectroscopy studies may have applications in DNA sequence, and ultimately, gene detection. To test this proposal, it is necessary to synthesize hairpin polyamide-FRET conjugates, i.e. hairpin polyamide ligands covalently bound to FRET chromophores. Described herein is the synthetic process working towards the total synthesis of two hairpin polyamide-FRET conjugates. An imidazole trimer, and an imidazole-pyrrole dimer were synthesized via successive amide bond coupling reactions utilizing two different sets of amide bond coupling agents. In the future, these products will be used in the continuation of hairpin polyamide-FRET conjugate synthesis.

Abena Boamah-Acheampong

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: John Neuhoff

Bad Kids These Days: Behavior Modification and Parental Perceptions of Children with Behavioral Disorders (ODD, ADHD, & CD)

The present study investigated the parental perceptions of children with behavioral disorders, looking at three groups of parents; potential parents, parents of children with behavioral disorders, and parents of children without behavioral disorders. Treatment of children with behavioral disorders shows that parental training is very important in the treatment of children with behavioral disorders. It is of concern that there is a lack of research about the parental perceptions of children with behavioral disorders, since children with behavioral disorders and their parents report negative stigma towards their situation. It was hypothesized that parents of children with behavioral disorders would be more likely to attribute a child's inappropriate behavior to an internal cause such as a behavioral disorder than bad parenting. Analysis of the data revealed a significant difference between how parents of children with behavioral disorders and parents of children without behavioral disorders attributed a child's behavior.

Christina Bowerman

2:15 p.m.

CoRE Cube in Andrews Library

Women's, Gender, & Sexuality Studies and Religious Studies Double Major

Advisor: Christa Craven and Charles Kammer

Pray the Gay Away: An Examination of Masculinity in the Ex-Gay Movement

This thesis explores how the ex-gay movement “rooted in the evangelical Christian church projects” enforces biblical masculinity through published and practiced testimonies of ex-gay conversion. Academic literature on this topic is often polarized as 'feminist critique' or 'Religious Sentiment'. Instead, this project explores the ex-gay movement from both a feminist/queer and religious studies perspective. I will examine how masculinity functions simultaneously as a biblical construction and a social construction instead of one or the other. My research will consider how the use of practiced and published testimonies produce an ideal masculinity for other ex-gay men to achieve and emulate. Ex-gay testimonies were collected through two different Exodus International conferences, other ex-gay ministries mailings, and the Presbyterian Church U.S.A. ex-gay organizations. Through an analysis of my participant observation at an Exodus International Love Won Out conference and content analysis of the collected testimonies, this project will explore the ways in which men who participate in ex-gay organizations learn and perform masculinity as a central step in becoming ex-gay.

Brittany Braun

9:15 a.m.

Wishart 101

Communication Studies Major

Advisor: Denise Bostdorff

The Art of Gangs:

How Law Enforcement Identifies and Responds to Symbols of Gang Activity, including Non-Verbal Communication

The purpose of this study is to examine how law enforcement identifies and responds to symbols of gang activity, including non-verbal communication. The method guiding this study is ethnographic interviews, which help the researcher get below the surface of an issue and explain responses in more depth than survey research. I interviewed nine law enforcement officials from a large city in the northeastern United States about their daily job routines and tasks, as well as how they identify gang activity. In my analysis, I explain the impact of gangs on the community, how officers identify gangs and gang activity, the resources they use to do so, the policing strategies with which they use to respond to gang activity, and the most challenging aspect of working with gangs.

Patrick Brennan

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: William Morgan and Richard Lehtinen

Phylogeography and the Phylogenetic Relationships of Polychrus marmoratus on Trinidad, Tobago, and Mainland South America with remarks on the introduced status of Anolis richardii on Tobago

Polychrus marmoratus, the common monkey lizard, occurs on Trinidad, Tobago, and South America. We used mitochondrial genes (16S and COI) to build phylogenetic trees to discover if genetic divergence has occurred and give insight into colonization events. The maximum parsimony analysis for P. marmoratus grouped individuals from the same locality as each other's closest relatives. The pairwise sequence difference between Trinidad & Tobago and mainland populations was ~ 1.9% which provides support for cryptic speciation between these populations. The populations from Guyana showed an average pairwise distance of ~3.0% between any other populations including other mainland populations. The pairwise distance between Trinidad and Tobago individuals was ~0.2% indicating little genetic difference among populations, which supports a recent colonization event from Trinidad to Tobago. Mitochondrial genes were used in order to verify the introduced status of Anolis richardii from Grenada to Tobago. The sequences from the Grenada and Tobago populations were 100% identical which indicates a very recent introduction to Tobago.

Hope Brill

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: Amy Jo Stavnezer

Drug Abuse Explored in Mice: Tolerance and Cross-Tolerance in Nicotine and Ethanol Using Siegel's Model

The present study examined the tolerance and cross-tolerance of nicotine and ethanol using Siegel's model of tolerance. The thirty male and female C57BL/6J mice were separated into the Ethanol Same-Context Group, the Ethanol New-Context Group, the Nicotine Same-Context Group, or the Nicotine New-Context Group following 6 days of ethanol exposure. It was hypothesized that the mice would become tolerant to ethanol, show cross-tolerance to nicotine and display a lack of tolerance in the new context compared to tolerance in the same context. Additionally, the drugs were expected to have anxiolytic effects on the mice. The results showed significant effects of the drugs, but opposite to they hypothesized anxiolytic properties. Furthermore, tolerance and cross-tolerance and the contextual influence of Siegel's model were not found. Nicotine and ethanol are two drugs in society that are often used in excess, yet research is needed to determine why these drugs are often abused concurrently.

Jordan Broutman

9:00 - 11:00 a.m.

CoRE in Andrews Library

History Major

Advisor: Gregory Shaya

Re-Framing the Slaughter: Remembering the Rwandan Genocide

This I.S. project looks at both official and silenced discourse pertaining to Rwandan genocide remembrance. I look specifically at discourse in museums, memorials, memoir, and film. I argue that the Rwandan state exists in the midst of a political conflict that has produced dual memories of victimization. While the genocidal violence inflicted on Tutsi should be commemorated as uniquely cruel and inhumane, many Hutu experienced similar acts of violence in the 1972 Burundian genocide and in eastern Congo at the hands of the Rwandan Patriotic Army. The Rwandan state faces the challenge of rebuilding in a context in which both sides have memories of victimization, but only certain groups receive official recognition.

Leah Brown

9:00 - 11:00 a.m.

Gault Library for Independent Study

English Major

Advisor: Benoit Denizet-Lewis

Breaking (Amish) News: Citizen Journalism in the Digital Age

This paper explores the way Amish culture interacts with religiously guided news as well as secular news sources. Through looking at the premier Amish news paper, The Budget, it becomes clear how the Amish view themselves and how they want 'outsiders' to view them. As well as looking at The Budget, the paper presents two examples of Amish lifestyles. The rigid portrayal of themselves, although not completely accurate, has brought the culture unwanted attention and does nothing to help bridge the gap between Amish and English culture. It is important to look past this portrayal because of the media portrayals presented by shows like Amish Mafia and Breaking Amish, and books like those written by Beverly Lewis. This paper also examines the way Amish are interacting with new forms of technology and whether or not their paper will be able to survive.

William Burkhart

1:30 p.m.

Lean Lecture Room

History and Russian Studies Double Major

Advisor: Hayden Schilling and Yuri Corrigan

Putin and the Russian Federation: Securing Power at the Expense of Democracy

This Independent Study features the works of Vladimir Putin, opposition writers such as Anna Politkovskaya, Masha Gessen, Lilia Shevtsova, and other prominent Russian scholars. By referencing the insights of these individuals, and putting them in context with newspaper articles written during the time period, it is possible to establish, and analyze, the government and opposition accounts of the events examined in this Independent Study. The purpose of this Independent Study is to examine precisely how autocratic Putin's first two terms as President were, and what effect they had on the state of freedom and democracy in the Russian Federation. Putin's persecution of members of the opposition and the media comprised the dark side of his two-terms as president. By understanding the most horrific and questionable events of Putin's presidency from 2000-2008, along with his past, we can better realize the true legacy of Putin's first years in office.

Luke Butcher

1:15 p.m.

Kauke 038

Anthropology Major

Advisor: Matthew Mariola

The Good Farmer, The Productive Farmer: Paradigms and Worldviews in Contemporary U.S. Agriculture

A compilation and analysis of the paradigms of those in contemporary U.S. agriculture. The study includes input from: farmers, brokers, crop breeders etc., on their perceptions on what the purpose of farming is and what an ideal system would encompass.

Cassidy Calkins

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Judith Amburgey-Peters

Pre-G.I.L.S. (Guided Inquiry Learning Sessions): Supplemental Instruction for Introductory Chemistry 110

A preliminary supplemental instruction (SI) program was implemented for Introductory Chemistry 110. It was hypothesized that SI would allow students to achieve these Specific Aims: appropriate confidence in course material, good learning practices, good chemistry learning practices, and appropriate math skills for Introductory Chemistry 110. Sessions were held once a week for 80 minutes, and consisted of experiment and concept-centered sessions. Student surveys revealed the achievement of Specific Aim One. In-session evaluations revealed the achievement of Specific Aim Two. Statistical analysis of final exam scores revealed a statistically insignificant difference in the scores of participants and non-participants. However, the average exam score of participants was higher than that of non-participants; due to conflicting results, it cannot be determined whether or not students achieved Specific Aim Three. Self-diagnostic data revealed the achievement of Specific Aim Four. Overall, these results revealed that SI is beneficial and valuable at the College of Wooster.

Milo Carpenter

2:00 p.m.

Kauke 038

English Major

Advisor: Bryan Alkemeyer

Breaking Patriarchy: The Utopias and Discontents of Gilman, Atwood, Le Guin, and Burgess

The utopian/dystopian genre of literature tends to marginalize women into subservient roles to men. This Independent Study examines four novels that break these patriarchal expectations of utopian/dystopian literature, Charlotte Gilman's Herland, Margaret Atwood's The Handmaid's Tale, Ursula Le Guin's The Left Hand of Darkness, and Anthony Burgess's A Clockwork Orange. Through these four novels I determine different areas of society in which women are oppressed and the consequences that has on society. Men use rape, sex, gender binaries, and gender roles to oppress women. Gilman, Atwood, Le Guin, and Burgess present arguments for how these binaries are detrimental to society through paradises without men and dark satires of societies that specifically oppress women. These four novels argue to discontinue gender oppression and show the improvements society would have if women were given positions of power. Finally, these authors directly show the flaws in traditional utopian/dystopian literature rooted in patriarchal ideas.

William Cary

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Shelley Judge

Ballistics Analysis of Volcanic Ejecta: Miter Crater, Ice Springs Volcanic Field, Black Rock Desert, Utah

This study focuses on Miter Crater, part of the Ice Springs Volcanic Field in the Black Rock Desert, in order to conduct a ballistic analysis of the 34 blocks and bombs observed along the crater rim. Data collected was then used to model possible trajectories and muzzle velocities for each block and bomb according to their respective recorded parameters in the program Eject!. The eruptions transporting these blocks and bombs likely experienced a relatively large zone of reduced drag and/or multiple collisions that aided in the transport of smaller ejecta. Data analysis of Miter Crater ejecta was then used to create a hazards model for ballistic volcanic ejecta that shows four zones of differing risk levels. The level of risk due to impact decreases as one heads away from the eruptive center. The extent of the largest zone reaches approximately 1300 m in diameter.

Michael Chido

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Paul Bonvallet

Synthesis of Monomeric Precursors for a Crown-Ether-Containing Conjugated Polymer via Acyclic Diene Metathesis

Derivatives of poly(p-phenylene vinylene) containing a crown ether in the repeat unit potentially combine the photophysical properties of conjugated polymers with supramolecular activity. The Wittig reaction is moderately effective in joining the requisite monomeric units, but suffers from moisture sensitivity and a low degree of polymerization. A polymerization strategy using acyclic diene metathesis may afford a higher molecular weight polymer. This material is expected to have tunable electroluminescence with the inclusion of guest species inside the crown ether. The building blocks of the polymer must first be synthesized. The Wittig reaction has been performed to synthesize one of the monomers.

Lilianna Christman

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Susan Lehman

The Effects of a Magnetic Field on a Conical Bead Pile

The effects of increasing cohesion between steel beads in a slowly-driven bead pile were investigated by surrounding the pile with two Helmholtz coils to produce a uniform magnetic field. When a magnetic field is present, the beads become magnetized but do not stay magnetized when the coil current is reduced, enabling us to change the strength of the magnetic field and thus the cohesion between the beads as desired. The data were analyzed to examine the probability of avalanches based on size. When there was cohesion among the beads, the probability of large avalanches increased while the probability of mid-sized avalanches decreased, causing humps in the probability distribution. The data were also analyzed to examine the probability distribution of inter-event times in bead drops for different size avalanches. For large

avalanches, the inter-event times were longer. The typical inter-event time also became longer when cohesion was increased.

David Chu

2:30 p.m.

Taylor 111

Classical Studies Major

Advisor: Monica Florence

Comedy Tomorrow, Tragedy Tonight: Euripides' Choral Innovations in Greek Tragedy

This Independent Study examines the innovations of the Greek playwright Euripides to the chorus in Greek Tragedy, more specifically in his *Alcestis*, *Trojan Women*, and *Phoenician Women*. I argue that Euripides breaks from the tragic tradition, taking the chorus out of its set mold and emphasizing its liminal nature. I further posit that Euripides uses the chorus as a bridge that allows for a powerful connection, through the music of the play, between past and present, performance and society, and poet and audience, in order to comment on Athenian society. Euripides' innovative treatment of the chorus subverts traditional characterization of tragic heroes and non-tragic characters, placing these characters on a more equal level, and through the chorus he blurs this characterization.

Evelyn Clarke

2:45 p.m.

Taylor 111

English Major

Advisor: Debra Shostak

The Curse of the South: Using Trauma Theory to Examine Faulkner's The Sound and the Fury and Absalom, Absalom!

This project seeks to address the role of trauma in William Faulkner's novels *The Sound and the Fury* and *Absalom, Absalom!* Through the use of such theorists as Caruth, LaCapra, and Freud, it is shown that a subject can be traumatized by institutionalized factors that are pervasive in society. In both novels, the ideal of 'the South' plays a large role in the traumatization of the characters. Themes such as masculinity, race, and sexuality are all traumatizing aspects in the novels. Through investigating the cause of each character's trauma, we can see what negative aspects of the South were most troubling to Faulkner, and what he calls on us to change in society.

Amanda Collins

2:30 p.m.

Severance 009

Sociology Major

Advisor: Christa Craven

They're Goin' to the Chapel, Gonna Get Married: An Examination of Why Young Adults Want to Marry

This research measures why young adults choose to get married. I designed my own survey, which was distributed to College of Wooster students and alumni. I used frequencies and cross-tabs in order to see which factors have the greatest impact on the students and alumni's desire to marry. I use relevant research from sociology and anthropology, as well as history and psychology to discuss why certain factors are important in the decision to marry. The theories of Arnold van Gennep, Niklas Luhmann, and Axel Honneth to deepen the understanding as to why marriage is still a valued institution.

Ultimately, most young adults' have multiple motivations to get married. The motivation that is unique to marriage is the legal recognition of love which, according to my theoretical analysis, contributes to the development of the self.

Emily Corwin

9:15 a.m.

Taylor 111

English Major

Advisor: Debra Shostak

The Flâneuse in Film: Female Flânerie in the French New Wave and Contemporary Indie Cinema

This Independent Study examines the ways in which directors of the French New Wave and contemporary “indie” cinema use the figure of the flâneuse and the concept of flânerie in their respective films. The flâneuse, a mythic figure that first appeared in nineteenth-century Paris, is often characterized as an aimless, wandering woman who actively observes the modern landscapes that she walks through. Themes that typically emerge in association with the flâneuse—such as observation, aimlessness, melancholy, mobility, the search for self, and an appreciation of the everyday—are embodied both in the medium of film itself and also in certain types of films, often described as “flâneuristic.” Analyzing Agnès Varda’s *Cléo de 5 à 7* (1962), Alain Resnais’s *Hiroshima mon amour* (1959), Sofia Coppola’s *Lost in Translation* (2003), and Cate Shortland’s *Somersault* (2004), this project evaluates themes of female image, identity, movement, and spectatorship in flâneuristic films of postwar cinema.

Theodore Cox

1:00 - 3:00 p.m.

Kauke 238

Sociology Major

Advisor: Stacia Kock

Measuring Inequality: A Sociological Look at Alternative Schooling

The aim of this study was to talk about a quality education in a way that made it less subjective. This was accomplished by examining student responses to several key themes such as parent involvement, teacher involvement, the use of multiple assessments, the suppression of minorities, socioeconomic influence, and the influence race plays. My study found that I do not have definitive proof to say that the alternative schools I interviewed are providing a quality education overall.

Rachel Craddolph

2:30 p.m.

Lean Lecture Room

International Relations Major

Advisor: Robert Maclean

Mogadishu...We Have a Problem: How Decolonization Set Up the Democratic Republic of Somalia to Collapse

This study looks at the decolonization process in Somalia and how it set the country up to collapse. The study is separated into three different chapters with the first looking at the colonial and decolonization process, the second chapter focusing on relations with nearby neighbors and conflicts, and the final chapter combining the historical narrative to the literature on state collapse; its misapplication to Somalia and how it is necessary to bridge the historical narrative with the work on

state collapse. My study concludes with that decolonization did directly effect the future of Somalia, dispelling mistruths about Somalia and that the situation and people are a hopeless case.

Rebecca Craig

11:20 a.m.

Severance 009

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Karl Feierabend

Kinetics and Mechanism of the Reaction Between Oxalic Acid Species and Hydroxyl Radical

Oxalic acid can undergo oxidative photochemical degradation in the atmosphere and during UV disinfection during wastewater treatment processes. Oxalic acid photooxidation is initiated by a reaction between oxalic acid and a hydroxyl radical. This reaction was investigated to first determine a rate constant and second, to gain a better understanding of the degradation mechanism. A series of reactions were performed, varying the initial concentrations of oxalic acid and hydrogen peroxide. When exposed to UV light, hydrogen peroxide will generate the hydroxyl radical. Oxalic acid and hydrogen peroxide decomposition was monitored with HPLC and spectrophotometric assays with a UV-Vis spectrophotometer, respectively. A kinetics model developed with the program IgorPro was used to determine the rate constant for the reaction to be on the order of 10^6 to 10^8 M⁻¹ s⁻¹, which is consistent with the rate constants determined by previous studies and supports the proposed hydrogen abstraction mechanism for the reaction.

Katie Crawford

9:00 - 11:00 a.m.

CoRE in Andrews Library

International Relations Major

Advisor: Jeffrey Lantis

What is the Goal? Nationalist Mobilization through Football and Regional Government in Three Spanish Autonomous Communities

Through a comparative case study analysis of Catalonia, the Basque Country and Galicia, three autonomous communities in Spain, I will explore how relationships with the regional football club and regional government have been used by the nationalist movement to shape national identity, expand the movement and move toward a more autonomous nation. The research question I will address in this investigation is: does the nationalist movement utilize its relationships with the regional football club and regional government to expand nationalist sentiment, mobilize the movement, and increase successful claims for autonomy and independence? I hypothesize that in regions where the nationalist movement has a moderate to strong relationship with the football club, there will be higher levels of regional autonomy, given a pre-existing level of nationalist sentiment among the regional population. Similarly, I hypothesize that in regions where the nationalist movement has a moderate to strong relationship with the regional government, there will be higher levels of regional autonomy.

Katy Darling

11:20 a.m.

Lean Lecture Room

Psychology Major

Advisor: Bryan Karazsia and Michael Casey

The Roles of Individual Personality and Statewide Personality on Individual Corporal Punishment Beliefs

Corporal punishment is a parenting technique that, when used inappropriately, can be related to negative child outcomes. The present study aimed to look at personality as a predictor of corporal punishment beliefs in adults as a way to target education concerning discipline techniques for parents. Personality was examined at both individual level and at the state level, in which mean personality scores of each state were used. There is a significant relationship between individual personality and corporal punishment beliefs such that Openness, Neuroticism, Agreeableness and Extraversion were related to corporal punishment beliefs. Statewide Neuroticism was also a significant predictor of individual corporal punishment beliefs. Statewide personality did not affect the relationship between individual personality and corporal punishment beliefs. Education for parents concerning different discipline techniques can be targeted based on these findings.

Kyla Davis

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Matthew Moynihan

The Torus and Graph Theory

Often we find properties of planar graphs that can be generalized for other surfaces. This study explores and compares such properties of planar graphs with toroidal graphs, with notable topics such as the Euler characteristic and formula, Kuratowski's Theorem and the Four Color Theorem.

Erin Davison

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Jennifer Bowen

Quaternions and Octonions

The purpose of this project is to investigate the algebraic systems the Quaternions and Octonions. It includes a review of concepts from Calculus, Linear Algebra, and Abstract Algebra that will be referred to throughout the project. It focuses on the algebraic structure and geometric applications of the quaternions, as well as gives an example of a special case quaternion. It also includes the extension of the quaternions, the octonions, and concludes with the construction of these algebras by the Cayley-Dickson process.

Ted Day

2:30 p.m.

APEX in Gault Library

Sociology Major

Advisor: Thomas Tierney

Max Weber meets Michel Foucault, and Society Ensues:

Charisma and Parrhesia in Societal Evolution, and Other Musings

Societies have risen and fallen throughout history. This theoretical study seeks to understand the process by which societies succeed and fail, how societies evolve over time, and what role an individual leader can play in this evolution. Societal evolution follows a pattern that this study refers to as Punctuated Equilibrium, a term borrowed from evolutionary biology. Societies remain unchanged for long periods of time, and then rapidly change through destructive means in a short time frame. A synthesis of Max Weber's works on Charisma and Politics as a Vocation with Michel Foucault's work on Parrhesia provides the possibility that a society can adapt to new conditions without having to dismantle and reassemble itself. While modern societies have not achieved this ideal, there may be unique opportunities for institutional reform that past societies have not been afforded.

Roxie Deer

9:00 a.m.

Kauke 305

Sociology Major

Advisor: Heather Fitz Gibbon

If my kids don't have me, they have nobody. Parents' perceptions of their children's high school.

The number of parents participating in high schools every year is declining and the rankings of public schools are constantly being scrutinized in the media. Few sociological studies have been done on how all of this challenges parent perceptions of their child's education. Using nine in-depth, personal interviews with parents of high school children to gain personal stories and experiences of their time spent in a public education system, this study explores the perceptions of parents on their child's education, understanding the role of race and socioeconomic status with those perceptions. Theories that apply the role of socioeconomic status to a child's success will be used in the analysis of the interviews conducted. The findings of this study suggest that we can ignore the idea of socioeconomic classes and race when discussing parent perceptions but rather look at their level of involvement and the needs of their child.

Jacqueline DeFrancesco

9:15 a.m.

APEX in Gault Library

Sociology Major

Advisor: Stacia Kock

Leadership. Empowerment. Gender:

A Sociological Examination Of The Effects Of Emotional Intelligence And Empowerment On Female Leadership

My project is a sociological exploration of emotional intelligence and empowerment and its implications on women in the work place. I create a series questions for working-women based on previous literature on emotional intelligence, empowerment and leadership. Through in-depth interviews, I construct an analysis of leadership. Through questions relating to interpersonal relationships, conflict management style, and family values conclusions are drawn regarding emotional intelligence and its effectiveness in the work place. I conclude with a broader discussion of executive women, the unseen pressure of family on women in the work force, and the ways in which emotional intelligence may facilitate greater success in the work place as well as in the home.

Kevin DeGroot

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: Stephanie Strand

*Induction of Streptomycin Resistance through Repeated Exposure in Pseudomonas chlororaphis:
An Environmental Model for Acquired Resistance in the Clinical Pathogen*

The opportunistic bacterium, *Pseudomonas aeruginosa*, is a threat to patients suffering from a compromised immune system or who are at risk of chronic infections. Conventional treatment for *P. aeruginosa* infection involves regular doses of aminoglycoside antibiotics. A major concern is that these treatments are causing the selective pressure for the evolution of antibiotic resistance strains. In this study, resistant colonies of *Pseudomonas chlororaphis* were generated in vitro through repeated exposures of streptomycin. These resistant cells were found to have variable minimum inhibitory concentrations. Additionally, susceptibility to streptomycin wasn't shown to return following four days of incubation in the absence of antibiotic. These results suggest that a spontaneous mutation may have occurred during the generation process and was selected for by the antibiotic pressure. Genetic comparisons of these resistant cells with wild-type cells may provide better insight into genes that are important for aminoglycoside resistance in *P. chlororaphis* and *P. aeruginosa*.

Jordan Dieterle

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Laura Sirot and Reed Johnson

The Lethal and Sublethal Effects of Dinotefuran on Apis mellifera Hives

Apis mellifera, the European honey bee, is a problematic insect as it builds hives in human habitations and hives require multiple doses of pesticide to eliminate. This study investigated the effects that intentional poisonings have on hives and why multiple applications are necessary. In this study, dinotefuran, a common insecticide, or a control substance was applied to observation hives in two doses, one week apart. Dinotefuran had several effects: a decreased number of eggs laid by the queen, the number of foragers, and the area of brood and bees and an increased time queens were tended to in the hives. Honey bees may have combated decline with their food storage, intricate caste system, and reallocation of tasks. Having a reserve of worker bees and brood helped a hive to regain strength and health after one application of pesticide, but not overcome the second application.

Anna Divis

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: Claudia Thompson

Monkey See Monkey Do: Imitation and Tool Use in Cebus apella Monkeys, Human Children, and Infants

Most studies state that *Cebus apella* monkeys do not have the ability to imitate a familiar human. A study by Fredman and Whiten (2008), suggested that *Cebus* monkeys might be able to imitate humans. The present study aimed to clarify their results and to extend that study by comparing *Cebus apella* monkeys imitation skills to preschool aged children and infants' imitation skills in the use of tools. Further, the study aimed to look at social influences and their affect on the groups imitation in the three groups. The results of the study suggest that *Cebus apella* monkeys were not able to imitate

human models in a tool use task, but that they are able to learn to perform tasks by watching human models. The results also showed that human children successfully imitated human models in some tasks, but not others and were influenced by more familiar adult models than strangers.

Darius Dixon

2:00 p.m.

APEX in Gault Library

Self-Designed: Arts and Media Management Major

Advisor: Denise Bostdorff

The Grey Area: Using Film to Educate Independent Music Artists in Practices of Branding and Promotion

Film is an excellent teaching tool, especially for those persons interested in topics they may be unfamiliar with. Film is an excellent alternative to lengthy literature filled with jargon that may not be readily accessible to non-scholarly audience. The director of an instructive film must be keen to the limits in time, space, and information spanned across time. They also should be well versed in the topic and present the information in a way that the viewer can understand, even if their knowledge base is limited. In my film, *The Grey Area*, I explored the arena of the independent music industry to discover some best practices for independent artists seeking to brand and promote themselves. My thesis explored identity and branding's correlation to entrepreneurial success while simultaneously analyzing film's ability to instruct potential students of branding and promotion. This speech will cover my findings and the process of creating my film.

Ethan Doherty

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Laura Sirot

*Behavioral Effects of Intraguild Predation by *Harmonia axyridis* on *Aphidoletes aphidimyza* and the Biological Control Services of Shared Prey*

Intraguild predation by invasive species dynamically affects native competitors. Effects of intraguild predation by invasive multicolored Asian lady beetles (*Harmonia axyridis*) upon the behavior of aphid predatory midges (*Aphidoletes aphidimyza*) was examined. Activity budget studies showed *A. aphidimyza* spent more time at rest, but less time feeding and moving in the presence of the ladybeetle; however, no difference was observed in time spent foraging. Comparing the effectiveness of biological control groups (midge only, beetle only, both predators, neither predator), I found that if intraguild predation occurred, the treatment with both predators was the most effective, and the aphid predatory midge significantly reduced aphid populations. If not, the lady beetle only treatment was the most effective treatment, and the aphid predatory midge had no significant effect on aphid populations. These experiments suggest that *H. axyridis* significantly alters *A. aphidimyza*'s behavior, and that the aphid predatory midge may affect the lady beetle.

Abigail Douglas

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Susan Clayton

The Effects of Head Motion on Mood, Life Satisfaction, and Future Expectations

This study investigates the effect of head motion in the form of vertical nodding movements and horizontal shaking movements on the perception of one's own life. It was hypothesized that whether a person nods (a positive, agreeing action) or shakes (a negative, disagreeing motion) will reflect in corresponding ways on his or her immediate mood, overall sense of life satisfaction, and expectations for the future according to the theories of congruent thought production and self-validation. Contrary to expectations, no significant relationship was found between moving head conditions and attitude toward life. The finding that participants in the neutral, unmoving condition scored higher in life satisfaction and optimism indicates that connection may exist between head motion (or in this case, lack of motion) and certain aspects of the broad topic of attitude toward life.

Lorenzo Dumancas

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Susan Lehman

Optimization of BEEM Techniques Through the Analysis of GaN Nanowires and Au: GaAs

The primary topic of this thesis is the analysis of the Schottky barrier height of samples of Au: GaAs and GaN nanowires. This was accomplished through the use of a ballistic electron emission microscope. The ballistic electron emission microscope was adapted from a scanning tunneling microscope through the addition of extra base and BEEM current terminals in order that BEEM spectra may be collected. During this experiment the Schottky barrier height of Au: GaAs was characterized and compared to previous data taken at the Technical University of Vienna (TU-Wien). This data compared favorably to the data at TU-Wien thus showing that the adapted BEEM system was functioning properly. Some preliminary data was also taken for GaN nanowire samples.

Gideon Dunster

10:15 a.m.

Severance 009

Biology Major

Advisor: Patrick Crittenden

Music and the Brain: Exploring the Effects of Music on Spatial Learning and BDNF Protein Expression in the Mouse Hippocampus

In 1993, Rauscher et al. demonstrated that exposure to Mozart's sonata for two pianos improved student's spatial task performance. Nicknamed the 'Mozart effect,' results have been reproduced in humans and rodents. It has been proposed that music can act as environmental enrichment (EE), providing enhanced stimulation and resulting in increased levels of brain-derived neurotrophic factor (BDNF), a neurotrophin associated with spatial learning and memory. To examine the relationship between different classical music forms, EE, and BDNF expression, thirty-two mice were subdivided and exposed to either Mozart's Sonata, Samuel Barber's Adagio for Strings, Samuel Barber's Agnus Dei, or silence for twelve hours daily. Mice were tested in a Morris water maze to assess spatial task performance and BDNF levels were quantified following testing. No significant differences were observed in spatial task performance or BDNF levels between groups. Therefore, the data produced in this study do not support the Mozart effect hypothesis.

Joe Dziedziak

1:00 p.m.

Taylor 110

English and French Double Major

Advisor: Daniel Bourne and Carolyn Durham

Cracks Between the Cobble: France and the World Out There

This memoir tells the story of an American study-abroad student in Nice and Paris, France. Other than highlighting the cultural and linguistic difficulties and triumphs that come with international travel, each essay of this memoir searches to understand the effects of travel on the individual, the personal identity and one's conception of home. By the end of this memoir, the concepts of travel and self start to be reconciled in the understanding that when one steps out into the world out there, that world becomes permanently intertwined with one's identity and life.

Anna Easterday

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Jim Hartman

Only for Honest Men: A Survey of Voting Theory

This thesis surveys voting theory. The history of the development of the topic is discussed. A range of voting systems are described and examined, from the everyday to the fantastic. The fundamentals for analyzing voting rules are put forth and implemented.

Kurt Eicher

1:00 - 3:00 p.m.

Wishard First Floor

International Relations Major

Advisor: Boubacar N'Diaye

*Transnational Advocacy Networks and Human Rights Issue Emergence Amidst Internet Repression:
A Case Study of Syria And Egypt*

From an International Relations perspective, do we see the Internet as a tool used for principled good or as a weapon for the wicked? This study examines the impact of Internet repression on the emergence of human rights issues through a comparative case study of Egypt and Syria and a content analysis of Newsweek articles from 1980-2012. This study hypothesized less Internet repression would lead to greater human rights issue emergence. Using the number of Newsweek articles per country-year to gauge international discussion, issue emergence was indirectly measured. Within the limits of this study the hypothesis is proven correct. Egypt, with lower levels of Internet repression, had greater issue emergence according to our test than Syria. Thus, the greater Internet freedom a country has, the more success human rights issues have galvanizing on the international stage. Implications of this connection are deeply woven into economic and political development, social movements, and human rights frameworks.

Samira El-Adawy

1:30 p.m.

CoRE Cube in Andrews Library

French Major

Advisor: Harry Gamble

The life of Ivorian Refugees in Liberia: Obstacles with no Solution?

My IS is not in political science but in the French language. My research and utilization of the language were of practical use. Thanks to the Copland Fund, I am honored to have interviewed, in the summer of 2012, many Ivorian refugees in camps set by the international community in the remote areas of Liberia in West Africa. Working within the guidelines of a Norwegian NGO called NRC, I practically helped the organization understand better the views and perceptions of the French speaking refugees especially in terms of how they consider returning back to Cote d'Ivoire. There is no clear cut answer to the question of how the refugees will return. But due to my knowledge of French and maybe a little my nationality, Egyptian African, and personality, communications were facilitated. It was a personal enriching experience. The world is a small village.

Betsy Elderbrock

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Studio Art Major

Advisor: Marina Mangubi

Encaustic Internal Organs Paralleling the External Industrial World

The human body is a fascination to me, how no two are the same. I explored our internal bodies to reveal what is hidden within us. Simultaneously, I was seeing similarities between our internal organs and the industrial world around us. My photographs are images of man-made objects viewed from different vantage points, causing us to take notice of these normally forgotten items as we view them out of context. Wires on a telephone pole, sending messages, resemble our branching nerves; and light bulbs, generating heat, resemble our brains. The two objects (internal organs/ industrial objects) are in the gallery together to compare and contrast. The subjects are clustered in grids to represent being only a part of a whole. Viewed up close, the detail can be seen clearly. Seen from a distance, these details blur together and become part of a whole.

Meredith Eyre

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Richard Lehtinen and Marilyn Loveless

*Exploring the Microhabitats of Marsupial Frogs: A Study of the Forces Driving Habitat Selection for *Flectonotus fitzgeraldi* within Herbaceous *Xanthosoma jacquinii* Populations of Tobago*

This study examined the forces driving habitat selection for a phytotelm-breeding marsupial frog, *Flectonotus fitzgeraldi*, among phytotelmata in the herbaceous *Xanthosoma jacquinii* on the Caribbean island of Tobago. I examined 106 *X. jacquinii* at two study sites, of which 11 were occupied by *F. fitzgeraldi*. Data were collected for environmental variables, plant morphological characteristics, and aquatic variables for the phytotelmata within the plants. A multiple logistic regression model found water depth was the only significant predictor of *F. fitzgeraldi* occupancy in *X. jacquinii* phytotelmata ($p=0.023$). Therefore, this frog species seems to have a relatively broad ecological niche based on its ability to withstand a large range of ecological conditions. This flexibility may allow the frog to occupy other types of phytotelmata given the microcosm provides an adequate water supply. From a conservation perspective, this provides hope for the frog's long term survival despite possible changes to its surrounding environment.

Elizabeth Fackler

2:30 p.m.

Taylor 110

English Major

Advisor: Matthew Hooley

From Compost to Gram's Kitchen: A Cultural History of Food

This project was inspired by my relationship with my grandmother, Janice Zanette Fackler, who taught me how to cook before she passed away. I use memoir, poetry, and recipes to investigate food culture in the USA. The questions examined focus on US farm and food industry; the role that etiquette plays in our enjoyment of food; how relationships and power dynamics form around food; how advertising affects the relationship we have with our food, and the personal, local, and global benefits of sustainable agricultural practices and food movements.

Carolyn Fado

9:30 a.m.

Scheide Music Center 106

Comparative Literature Major

Advisor: Carolyn Durham

LenORE: Poe and Baudelaire at Play

LenORE is a bilingual, multi-generic, postmodern play inspired by the work of the nineteenth-century poets Edgar Allan Poe and Charles Baudelaire. The scholar Lenore loses her grasp on reality as she studies the work of these two poets. The play is in both French and English, and part of it is a film. LenORE was written in collaboration with music composition major Cara Haxo who wrote *L'Imagination de Lenore*, a song cycle in six movements for soprano baritone and chamber ensemble.

Tristan Fava

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: John Jewell

Can Incentive Influence Susceptibility to Inattentional Blindness?

Inattentional blindness is a phenomenon in which individuals do not always see obvious events that unfold directly in front of them. It is believed that this phenomenon can be attributed to working memory capacity and selective attention. Incentives are known to be capable of improving working memory performance through means of providing motivation. Participants watched an inattentional blindness video (Jewell, 2005) and were instructed to count the number of basketball passes made by the individuals in the video. During the video, 70% of the participants noticed the unexpected event, a gorilla crossing the screen, while 30% did not. The incentive of Hershey's Kisses for performance in the counting task had effect on noticing the unexpected event. Working memory scores did not influence susceptibility to inattentional blindness. The combination of unusually high notice rates in the inattentional blindness task and no influence by working memory suggests the presence of unknown variables.

Lisa Favicchia

2:15 p.m.

Severance 009

English and Classical Studies Double Major

Advisor: Daniel Bourne and Josephine Shaya

The Lost Letters of Calpurnia: An Epistolary Novella Based Upon the Life of Pliny the Younger's Wife

This epistolary novella based on the life of Calpurnia, the wife of Pliny the Younger, aims to bring to life the voice of this ancient Roman woman. Through the study of Roman elite women and their society, the letters of Pliny the Younger, modern epistolary novels, and the genre of the Roman epistolary collection, this novella seeks to give a voice to ancient Roman women as well as to provide a dynamic literary creation that will be both informative as well as entertaining to readers from any educational background.

Mark Federman

1:00 p.m.

Kauke 305

History & Chinese Studies Double Major

Advisor: Rujie Wang and Garrett Washington

Warlordism, Opium, and Party Purges: The Guomindang's Use of Shanghai's Green Gang in Efforts of National Unification During the Late 1920s

During and after the Northern Punitive Expedition (1926-1928) to expel China of warlordism, the Right wing of China's Nationalist Party, the Guomindang, chose to work with regional powers and fringe groups to aid their struggle towards national unification. In Shanghai, an area economically and politically significant for the Guomindang (KMT), the Right encountered a situation where it was the most beneficial for them to deliberately employ the help of the Green Gang, the city's premier secret society and criminal organization. In order to achieve their ends, Chiang Kai-shek and the conservative faction of the KMT sidelined party ideology, long-held biases, and alliances to better pursue a realistic and pragmatic strategy for national unification. This project will examine the motivations behind the Guomindang's deliberate choice to work with Shanghai's underworld (among other groups in Shanghai) and the methods and strategy used to recruit similar potential regional allies.

Ethan Feinstein

10:15 a.m.

Kauke 038

History Major

Advisor: Peter Pozefsky

Mastering the Patrol: A Look at the Importance of Training for American Pilots in the Battle of the Atlantic

I studied the Battle of the Atlantic for my Independent Study, which was a conflict centered around Allied merchant vessels. The German submarines, known as U-boats, tried to sink the cargo ships in an attempt to strangle the Allies economically. Specifically, I looked at the role of training for American pilots during the battle. For the Allies, pilot training improved over time. At the end of 1941 American forces struggled to sink the German U-boats. After months of patrolling the Atlantic and recommendations from scientific analysts, the United States' pilots improved their techniques and tactics of anti-submarine warfare. The increasingly effective training turned the tides of the battle in favor of the Allies.

Dana Feit

9:00 - 11:00 a.m.

Freedlander Lobby

Communication Studies Major

Advisor: Jennifer Moreland

Ears, Hooks, Hunchbacks, and Fins: An Ideological Analysis of Physical Disability in Disney Animated Films

As an examination of the portrayal of characters with disabilities in Disney animated feature-length films, this study examines Disney films through an ideological analysis, specifically with a postcolonial view. Disability studies, in general, focus on the separation of individuals with disabilities from society and the stigmatization, via stereotypes, these individuals face (Garland-Thomson, 2003; Smith, 2007). By studying disability in Disney, this paper gives particular attention to the way the non-disabled characters treat the individuals with disabilities. It emphasizes the presences of stigmatization and stereotyping in four Disney films. Analysis focuses on four central Disney characters: Nemo, Quasimodo, Captain Hook, and Dumbo, all of whom display significant physical disabilities.

Shawna Ferris

11:00 a.m.

CoRE Cube in Andrews Library

Communication Studies Major

Advisor: Denise Bostdorff

From Cold Warrior to Peace Advocate: How John F. Kennedy Utilized Epideictic Progression in his June 10, 1963, Commencement Address at American University

This study examined how John F. Kennedy made use of the epideictic or ceremonial nature of his June 10, 1963, commencement address at American University to advocate for a new policy, the Limited Test Ban Treaty. Utilizing the generic method of rhetorical criticism, this study concluded that Kennedy employed what I call epideictic progression to make use of epideictic themes in this address. Specifically, I determined that the President employed epideictic progression in four particular ways : (1) to unify the audience behind the value of genuine peace; (2) to shift the focus of praise and blame; (3) to establish the U.S. as an exemplar of peace; and (4) to lay the foundations for future action on civil rights. Through these epideictic appeals, Kennedy framed the Limited Test Ban Treaty as a rational and desirable policy, while also setting the tone for his civil rights address on June 11, 1963.

Noah Fisher

9:00 - 11:00 a.m.

Kauke 238

Anthropology Major

Advisor: P. Nick Kardulias

Sport as a Vehicle for Fostering Environmental Consciousness

In recent years there has been a drastic increase in popular concern for the natural environment. In addition, anthropologists have increasingly explored the role of sports in a social context. Simon Darnell examined the roles that sports can play in establishing peace and furthering international development of communities. Works of this nature have

pushed the idea that certain sports can in fact elicit change in communities and cultures. I argue that this idea should be true for fostering the development of environmentally conscious communities. Brock and Coglianesse highlight population retention and motivation as the main problems with social groups. In this study I use an augmented version of Marvin Harris' cultural materialist analytical model to show the ethos of Ultimate Frisbee communities will resonate with ideals of environmentally conscious communities. Through this resonance, the sport of Ultimate Frisbee can provide a vehicle for propagating and maintaining environmental consciousness.

Alex Fiske

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Susan Clayton

Blaming Victims: The Effects of Sexual Orientation, Provocation, and Gender on Perceptions of Domestic Violence

Domestic violence affects individuals across all races, socio-economic statuses, and sexual orientations. A lack of knowledge exists surrounding domestic violence within homosexual couples, and further research is necessary in order to understand this problem. Furthermore, factors leading up to and following scenarios of abuse may lead others to blame victims. The attribution and just-world theories attempt to explain why this occurs. The current study examined the effects of belief in a just world, victim provocation, sexual orientation, and gender differences on observer perceptions of the victims and perpetrators of domestic violence, as well as a suggested legal punishment. A relationship between provocation, relationship type, and victim blame was observed, among several other findings. Implications were discussed within the judicial system and for support systems made available to victims, along with directions for future research.

Sarah Frecker

1:00 - 3:00 p.m.

Kauke 238

Sociology Major

Advisor: Thomas Tierney

Consumption of Visual Art in Contemporary American Society

This study investigates the role of visual art within a class based system in contemporary American society. This study explores existing literature related to the role of visual art in society, discusses the theories of Walter Benjamin, Georg Simmel, and Pierre Bourdieu to understand the role of visual art in society, and analyzes the results of a survey which was distributed to randomly selected undergraduate students currently attending The College of Wooster and The Ohio State University Main Campus. This study aims to understand the role of visual art based on socio-economic status in contemporary American society. After reviewing existing literature, discussing the theories of Benjamin, Simmel and Bourdieu, and analyzing the survey results, it became clear socio-economic status does influence access to and consumption of visual art in contemporary American society.

David Freund

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: John Ramsay

The Machete Number

Knot theory is a branch of topology that deals with the structure and properties of links. Employing a variety of tools, including surfaces, graph theory, and polynomials, we develop and explore classical link invariants. From this foundation, we define two novel link invariants, braid height and machete number, and investigate their properties and connection to classical invariants.

Gus Fuguitt

1:00 p.m.

APEX in Gault Library

Sociology Major

Advisor: Heather Fitz Gibbon

Grand Forks Kept the Faith:

A Longitudinal Analysis of the Population of Grand Forks, North Dakota Since the 1997 Red River Flood

This study examined Census data and in-depth interviews to determine the long-term effects of the devastating 1997 Red River flood on the population of Grand Forks, North Dakota. Crosstabs compared Grand Forks to Fargo and North Dakota in the years 1990, 2000 and 2010, in order to compare percentage changes in Census data. Results indicated that although Grand Forks did exhibit variation from Fargo and North Dakota in many of the crosstab variables, by 2010 most of Grand Forks had achieved equivalent rates of growth or decline to Fargo and North Dakota. However, a few variables were suggestive of long-term flood impacts and Census tract analysis revealed that tract proximity to the Red River appeared correlated with either increases or decreases with some variables. Overall, the study promoted the case-study approach to disaster research and simultaneously advocated for considering natural catastrophes in a broader social and historical context.

Brenna Fujimoto

9:30 a.m.

Taylor 111

Communication Studies Major

Advisor: Denise Bostdorff

Fashion Blogs...The New Black:

The Creation of Identity and Use of Consumption Through Fashion Blogs within the Millennial Generation

Since the start of the millennium, fashion blogs have provided a major influence on the social media world by transforming themselves into key players within the fashion industry. Through these blogs, bloggers document their styles by using pictures of themselves or others who are fashionably inclined. Anyone, regardless of age, social status, or style can create a fashion blog, which is becoming a popular trend in the blogosphere. Studies found that in July 2010 over 2 million fashion blogs were circulating on the internet (Rocamora 409). The increased interest in fashion blogs has created a new space for individuals to express themselves, but also market products to the public. Through mediated interactions, fashion blogs are quickly changing the way the millennial generation processes self-expression and identity. I analyzed through focus group research how the millennial generation uses fashion blogs for the construction of self-identity and the purpose of making purchases.

Hanna Gabriel

9:30 a.m.

Kauke 038

Neuroscience Major

Advisor: Amy Jo Stavnezer

Lower Leg Compression Shows Promise to Improve Prolonged Peroneus Longus Reaction Time in Individuals with Functional Ankle Instability

Recent research supports that the peroneal proprioceptive deficit, caused by alteration of the \hat{I}^3 MN-muscle spindle system, may be a more significant contributing factor than altered articular mechanoreceptor activity to the overall proprioceptive deficit of individuals with Functional Ankle Instability. This study treated FAI subjects with lower leg compression in an attempt to re-sensitize damaged proprioceptive fibers by encouraging the co-processing of \hat{I}^3 MN-muscle spindle systems and cutaneous afferents. This study supports the existence of a proprioceptive deficit in the form of prolonged peroneus longus reaction time in individuals with FAI in comparison to healthy subjects ($p < .05$). FAI subjects with high CAIT scores demonstrated improved peroneus longus reaction time with the application of compression ($p < .01$). The results of this study support the need for future research to determine the capabilities of compression treatment as a novel form of preventative medicine or use as a rehabilitation aid.

Isaac Galef-Brown

1:00 p.m.

CoRE Cube in Andrews Library

History Major

Advisor: Katherine Holt

Resisting Colonialism: Cultural Syncretism, Indigenous Agency, and Exploitation in Colonial Potosí

High in the Andes in modern day Bolivia lies the legendary city of Potosí. A shadow lingers there, formed by the city's dark past of mass exploitation and virtual enslavement. Tens of thousands of indigenous peoples labored in Potosí during the Spanish Colonial Empire in the mountain called Cerro Rico. The discovery of silver within the mountain in 1545 brought about the collision of native Andeans with Spanish Colonial power and an unmatched desire for precious metals. Although most historic study of Potosí focuses on the hierarchal relationship that existed between the Spanish and natives in the mines, I emphasize aspects of the relationship that existed in Potosí's thriving marketplace to characterize Spanish-indigenous relations in a different manner. I focus on interactions at the individual level as well as indigenous participation instead of broad narratives of Spanish conquest to portray a relationship defined less by exploitation than by cultural syncretism.

Laura German

9:15 a.m.

Taylor 110

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Paul Edmiston

Measurement of Glacial Meltwater Outflow through Water Analysis for Geohazard Recognition

Determining the occurrence and level of glacial stagnation is important for protecting communities in areas downstream that would be affected by consequential outburst release floods. There are potential chemical differences between glacial

meltwater and mountain snowpack tributaries that can be used to monitor glacial outflow. It is hypothesized that iron concentration and turbidity levels may be used to monitor hydrology of the Nisqually Glacier in Mount Rainier National Park. A series of field tests (Fe, NO₃, Hardness, pH/conductivity/ORP/temperature, turbidity) provided preliminary data to compare with analytical testing in the lab, including ICP-AES, colorimetric test, and TOC. Analysis shows Fe, temperature, and turbidity to be effective signals for monitoring glacial output that may be quickly and easily tested. Drastic changes in these measurements would indicate an event approaching/occurring. Future work involves correcting for the dilution factor in the Nisqually River from snowpack tributaries through easily measurable variables, like temperature.

Devin Giles

1:00 - 3:00 p.m.

Wishard First Floor

Economics Major

Advisor: Philip Mellizo

An Economic Analysis of Discrimination in Hiring Practices with Regard to Physical Attractiveness

The goal of this thesis is to estimate the degree to which the attractiveness of a job applicant acts to offset the traditional human capital signal of GPA included on the applicant's resume. Using a model of signaling theory in conjunction with a theory of human capital, a theoretical model was constructed to evaluate the hypothesis that physical attractiveness acts as a signal increasing the perception of productivity among employers. This was measured through a survey of participants who were asked to rate a job application's quality using a job description and resume-photograph combination, which varied by photograph attractiveness and resume quality. Results indicated that physical attractiveness had no impact on productivity evaluations when resumes were low to average quality, but that attractiveness positively impacted participants' evaluations when resumes were of high quality. The results of this paper provide partial evidence for influences of physical attractiveness within hiring practices.

Catherine Gillette

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Katherine Holt

American Quaker Activism: Emerging Leadership, Evolving Faith, and Extraordinary Change

Utilizing both existing scholarly research and information present in primary sources, I argue that the American Quakers' historic involvement in social justice movements has simultaneously been defined by their faith and helped to define their faith—making the Quakers somewhat unique among Christian denominations. Specifically, I analyze how this dialectical evolution of faith and action has occurred during three distinct moments of Quaker activism and what factors influenced the outcomes of each. In making these claims, I do not mean to discount the social justice contributions of other Christian denominations; instead, I wish to establish the Quakers as a unique case from which others might learn.

Tom Gilliss

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Cody Leary

Manipulation of Transverse Photonic Degrees of Freedom Via Classical and Hong-Ou-Mandel Interference

We demonstrate theoretical and experimental techniques for manipulating transverse spatial photonic degrees of freedom. Exploration of three interferometric systems reveals conditions necessary for Hong-Ou-Mandel interference (HOMI) between two photons, each in an arbitrary linear superposition of the two first-order Hermite-Gaussian modes. For a Mach-Zehnder interferometer arranged to discriminate between modes of odd and even one-dimensional parity, we predict that interference of two photons in a balanced, in-phase superposition of the first-order modes will alter the transverse wavefunctions of the photons to be of Laguerre-Gaussian form. For a balanced Mach-Zehnder interferometer, we find that HOMI can be observed for input photons in distinguishable spatial modes. Experiments test the one-dimensional parity-based Mach-Zehnder for inputs of coherent laser beams and find that perfect constructive and destructive interference, at either output, occurs under HOMI conditions. In addition, we demonstrate the ability to sort arbitrary spatial modes into their odd and even constituent modes.

Amanda Gittleson

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: John Jewell

I Have to Own That! Exploring the Relationship Between Impulsivity and Internet Shopping Behavior

The purpose of this study was to explore the extent to which exposure to an online store and impulsivity influence the extent of purchasing behavior. Sixty participants were screened and determined to either be low impulsivity or high impulsivity and were assigned to one of two conditions (control vs. pre-exposure). One group of participants was pre-exposed to the online shopping website Amazon for 15 minutes, while the control group has no pre-exposure to Amazon before completing a shopping task. The present research found a relationship between exposure and shopping behavior, while impulsivity was not found to facilitate shopping behavior.

Amanda Graeser

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Donald Goldberg

Exploration of Play Behaviors of Children with Autism and Typically Developing Children as Perceived by College Students

The purpose of this study was to investigate if senior college students were able to identify the atypical play behaviors demonstrated by preschool students with autism. The initial participants used for this study consisted of five male preschool-aged children. Three of the five were diagnosed with autism and range represented of the mild to high severity. The next participants that were used for this study consisted of 15 female senior college students at the College of Wooster. . Overall, this study found major conclusions for each of the majors and their ability to accurately or inaccurately rate the play behaviors of typically and atypically developing children. The results of this study lend to support the importance of the integration of play in classrooms for children with autism.

Devin Grandi

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Amber Garcia

Go Greek or Go Home: Investigating Greek Versus Non-Greek Perceptions of Fairness

The current study examines the effects of group membership and advantage on perceptions of fairness and affective responses. Survey data was collected from 185 undergraduate students at The College of Wooster. Participants read one of two possible scenarios regarding a housing dispute on The College of Wooster campus and then answered questions regarding perceptions of fairness, affective responses, and group membership. Results indicate that Greek members were more likely to perceive the outcome as fair when their group was advantaged, compared to when their group was disadvantaged. Additionally, when Greek members were disadvantaged, they were more likely to perceive the outcome as unfair and experience stronger negative affective responses compared to Non-Greek members whose opinions of fairness and affective responses did not differ across conditions.

Daniel Grantham

1:30 p.m.

APEX in Gault Library

Political Science and History Double Major

Advisor: Matthew Krain and Robert Maclean

The Global City of New York: Neoliberalism, Occupy Wall Street, and the Polarization and Repoliticization of Denationalized Space

Addressing the elite-focus of global city literature, this study argues this focus is a product of the field's methodological conventions which limit understandings of non-elites in global cities. Occupy Wall Street (OWS) and New York are used as a case study to examine non-elite's access to global social power via traditional and non-traditional political science/historical methods that begin to remedy the field's elite-focus. In light of a literature review and historical analysis, the study argues that the formation of a global city cannot occur without domestic neoliberal policies that encourage global capital into fixed locations. Correspondingly, this study's ethnography illustrates that under neoliberalism, the networks developed at elite-levels are analogous to non-elite networks which frequently deal with the consequences of neoliberalism. A product of its environment, the study concludes that OWS is a denationalized and cosmopolitan movement via its New York location.

Kelsey Grassman

10:00 a.m.

Kauke 305

Communication Studies Major

Advisor: Michelle Johnson

The Manliest of Men: Understanding Heterosexual Male Same-Sex Friendships in the Context of Football

The purpose of this study was to examine how heterosexual males form same-sex friendships and why heterosexual males are attracted to other heterosexual males as friends. More specifically, this study examined heterosexual male same-sex friendships within the context of collegiate American football. This study used face-to-face interviews to collect data from its participants. The questions asked participants to reflect on their friendship and provide insight into how football

has impacted said friendship, as well as how the formation of the friendship occurred and ways the friendship is maintained. The major conclusions of this study were: Men form close intimate relationships with other men; Similarity is at the root of male friendship formation; Football is a unique environment that nurtures male friendship; Masculinity is a relevant and important component of male friendships

Rebecca Gravenstede

9:15 a.m.

Severance 009

Neuroscience Major

Advisor: Amy Jo Stavnezer

Time-Dependency of β -Estradiol Neuroprotection Against Scopolamine-Induced Anterograde Amnesia in Rats

Anterograde amnesia (AA) is a common outcome of traumatic brain injuries (TBIs). Estrogen, when administered pre-AA induced by scopolamine, has shown to reduce memory impairments. The current experiment examined the time-dependency of estrogen neuroprotection against scopolamine-induced AA by comparing the benefits of \hat{I}^2 -estradiol administered pre- and post-scopolamine. Ovariectomized Sprague-Dawley rats were tested with scopolamine alone and then either ten days of \hat{I}^2 -estradiol treatment pre-scopolamine or \hat{I}^2 -estradiol treatment 30 minutes post-scopolamine. Subjects were tested for reference and working memory impairments in a water-based radial arm maze and recognition memory impairments in a novel-object recognition task. Results demonstrated that scopolamine caused significant working memory deficits, but left reference memory capabilities relatively intact. Results also showed that \hat{I}^2 -estradiol treatment post-scopolamine provided neuroprotection against working memory impairment. These results support the further examination of estrogen as a treatment for TBIs.

David Greetham

9:00 - 11:00 a.m.

CoRE in Andrews Library

History Major

Advisor: Jeff Roche

Chicago's Wall: Race, Segregation and the Chicago Housing Authority

When the Chicago Housing Authority (CHA) was created in 1937, the organization's mission was to provide decent and affordable housing for low-income residents. As thousands of African Americans migrated to Chicago after World War II, a combination of public policy and private exclusion segregated the new migrants in blighted and deteriorating neighborhoods. They turned to the CHA for housing. Through political manipulation and racism, the CHA became a vehicle to segregate, confine, and conceal Chicago's burgeoning African American population. By the late 1960s, 99 percent of CHA tenants were African American and over 90 percent of CHA developments were located in predominantly African American neighborhoods. By describing three transformational events in the CHA's history, this study examines the collapse of public housing in Chicago and the organization's role in segregating African Americans.

Eowyn Groves

9:15 a.m.

Kauke 305

French Major

Advisor: Harry Gamble

La Démocratisation de l'enseignement secondaire en France : L'égalité pour tous?
The Equalization of Secondary Schooling in France: Equality for Everyone?

Liberty. Equality. Fraternity. The French slogan exemplifies the pride that the French feel in their principles of equality. In this project, I analyze how current secondary education in France is stuck in a rut of inequality and educational hierarchy. Despite the values and discourses of equality dearly loved by the French, the inequalities in the French school system remain significant and worrisome. At the heart of this project, we find not only the secondary system itself, but also an issue around which it is clear that all other inequalities in this system revolve: social class. It is this central issue that leads me to dispute the success of the claimed scholarly democratization and equal opportunity that we see in France today. Thus this study focuses on the how and why of the difficult situation the French education system faces due to the ever-present and persisting inequalities in its secondary schooling.

Lauren Hadney

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Liliana D'Alba

The Effects of the Antimicrobial Agent Triclosan on Thyroid Hormone Levels and Metabolism in Rats

The endocrine system is a complex, specialized, body system responsible for both regulatory actions and hormone control. Within the endocrine system is the thyroid, an organ that modulates an organism's homeostasis through the secretion of two hormones, thyroxine and triiodothyronine. The thyroid is very important within the body and is also susceptible to disruption by chemicals, known as endocrine disruptors. In this study, the effects of endocrine-disrupting environmental contaminants were explored, specifically those of the ubiquitous, synthetic antimicrobial agent Triclosan. Female Sprague Dawley rats were treated with Triclosan for 19 days and the effects this exposure had on their pups' metabolism were recorded. Body temperature, weight, and oxygen consumption data were collected in addition to thyroxine concentrations determined from blood samples. Triclosan treatments had significant effects on body temperature, thyroxine concentrations, and metabolic rates. This study showed that Triclosan had profound effects on thyroid functioning and metabolism through indirect exposure.

Laura Haldane

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Self Designed: Art of Science Major

Advisor: Bridget Milligan and Susan Lehman

Disidentifying Performance of Freedom: Fight to Exist

My art takes a look at cultural norms surrounding gender by challenging and deconstructing views in the modern worlds that constrict diverse individuality. Utilizing the mediums of holography and photography, I attempt to dispel the contradictions of commonality within individualism. My process includes an active challenge of a social perpetual cycle attached to gender and identity. The photographs include real individuals that pose as voguers or performers who utilize dance to disidentify from dominant culture. These photographed poses are intended to further celebrate the deconstruction of gender norms. My holograms are of dolls that are manipulated in a way that confronts my audience with ways in which our society perpetuates gender norms. Mainly, the ultimate truth is that there is no ultimate truth, as it is our own selves that hold us back from true reality.

Spencer Hall

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics and Computer Science Double Major

Advisor: Jim Hartman, Drew Pasteur and Sofia Visa

Optimizing Integer Arithmetic for Public Key Cryptography

Public key cryptography describes a family of systems that allow for secure communication between two parties in the presence of eavesdroppers. We examine the history of cryptography and how the advent of public key cryptography irreversibly changed the science. The Diffie-Hellman key exchange protocol and the RSA cryptosystem and their applications are described in detail, as well as the mathematical theory behind them. The concept of radix representations and radix-sensitive arithmetic algorithms are explored. We create a simple arbitrary precision integer arithmetic system in Java and explore how arithmetic algorithm choices affect the performance of RSA implementations and RSA-related arithmetic functions.

Grace Hamilton

2:15 p.m.

Taylor 111

Psychology and Classical Studies Double Major

Advisor: Claudia Thompson and Monica Florence

Effective Pain Management in the Reduction of Addictive Behaviors: A Review of Greek Theories with Modern Implications

This project investigates subjective views of physiological functioning, the role they play in defining attitudes towards health and disease, as well as the treatment of chronic pain. By comparing the basic assumptions of Plato's mind-body dualism, and Aristotle's monist view with modern views of biological functioning, the culturally defined nature of the medical field is examined. Additionally, an empirical research study was conducted in order to examine how modern approaches to physiology can affect pain treatment. This study investigated the effect of progressive relaxation and cognitive coping on pain perception and smoking urge in a group of college undergraduates who were habitual smokers. Progressive relaxation and cognitive coping principles were applied to an acute pain model, using the cold-pressor test, in order to observe its influence on pain perception, smoking urge, and smoking behavior.

Michelle Hamstra

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Joan Furey

They're as Clear as Mud: An Investigation of the Quality of Life of Children with Childhood Apraxia of Speech

The purpose of this study was to compare the quality of life between younger children (ages 5-8) and older children (ages 9-13) with childhood apraxia of speech (CAS). In order to measure their quality of life, children with CAS answered both open-ended and closed questions that were adapted from McLeod (2004). There were few differences between the two age groups on their QoL. These findings suggest that the children in this sample have an adequate support system.

Caroline Hanson

2:00 p.m.

Kauke 305

Chinese and Anthropology Double Major

Advisor: Rujie Wang and Pamela Frese

走婚:*A One Night Stand or Eternal Love?:*

An Ethnographic Study of the Effects of Tourism on the Mosuo and Their Walking Marriages.

This study aims to look at how tourism is affecting the Mosuo culture, specifically their walking marriages. I lived with a Mosuo family around Lugu Lake and conducted in-depth interviews with 14 Mosuo people. Tourism is changing the Mosuo's perception of themselves and their culture, while also economically developing the region around Lugu Lake. Through these interviews I found that the Mosuo's walking marriage is not how the media portrays the Mosuo. Tourism is economically developing the region, while commodifying Mosuo culture and the presentation of Mosuo culture. The Mosuo perform their culture to tourists around the lake, while away from the tourist town the Mosuo practice a different culture, which is creating a front and back stage. Tourism is commodifying the Mosuo's walking marriages through prostitution and is also changing the dynamic of the Mosuo's matriline.

Kelsey Hardin

1:30 p.m.

Taylor 110

English Major

Advisor: Daniel Bourne

To Speak of Building My House: A Life with Gastroparesis

To Speak of Building My House: A Life with Gastroparesis is a creative writing IS project in the genre of creative nonfiction. This IS consists of a series of narrative, memoir-style personal essays detailing the author's experiences with a chronic, rare illness, a stomach disorder called gastroparesis. The essays are preceded and informed by a critical exploration of both the works of other memoirists who have documented their own experiences with illnesses, and also literary research about living with chronic illness.

Alex Harmony

10:00 a.m.

Lean Lecture Room

Anthropology Major

Advisor: David McConnell

*Seeking Respect in the Face of Poverty and Gendered Inequality:
A Case Study of Structural Violence in the Kibera Slum, Kenya*

This study looks at how poverty and gender roles form structural constraints that dictate the daily lives of those living in Kibera and how these individuals are able to exhibit agency in spite of the inequalities they face. Drawing on Paul Farmer's concept of structural violence, I show how girls and boys in Kibera must deal with lack of educational opportunities, lack of sanitation and health care, unemployment, and gendered marriage practices. At the same time, I use Pierre Bourdieu's concept of cultural capital and the work of Philippe Bourgois and Donna Goldstein on 'agency' and

urban poverty to illustrate how individuals find their own means of survival and try to take control of their lives through membership in churches, support groups, and gangs, as well as substance abuse and sex work. Sometimes these expressions of agency have positive outcomes, but often they are self-inflicting and cause further marginalization.

Brittany Harris

1:00 - 3:00 p.m.

Wishard First Floor

Economics Major

Advisor: James Burnell

Examining the Efficiency of Superman:

The Comparison of Efficiency and Academic Achievement of Charter Schools and Traditional Public Schools in Ohio

This paper addresses the question of charter school efficiency and the production of higher academic achievement than in traditional public schools. While it is a popular belief that charter schools are more efficient and should produce higher academic achievement than traditional public schools for students, it is not always true. Charter schools are public, non-tuition schools that operate separately from the traditional public school district located primarily in urban areas. Although theory supports the belief that charter schools are superior to traditional public schools, various literature show evidence that charter schools have a small positive impact on academic achievement and are not more efficient. Academic achievement is measured using fourth grade Ohio Assessment Tests from 2010-2011 using OLS. Results suggest that while charter schools may have higher academic achievement, they are only more efficient with the teacher input in Ohio and peer effects have a greater impact on academic achievement.

Peter Hause

1:00 - 3:00 p.m.

Wishard First Floor

International Relations Major

Advisor: Jeffrey Lantis

A Hometown Approach to Homegrown Terrorism? A Comparative Case Study on Countering Violent Extremist Policy

Events such as the Madrid 2004 train bombings, the 2005 London '7/7' bombings, and the 2009 shooting at Fort Hood Army base have many states in the West beginning to see homegrown terrorism as being as much of a threat as international terrorism, if not more so. This study aims to analyze policies that Western states have developed in order to address the homegrown terror threat. The cases of the United States and United Kingdom are used to explore how factors such as the understanding of radicalization and perception of threat impact the development and scope of counter-homegrown terror policies. Results of this case study indicate that a common understanding of radicalization may exist, leading to policies with similar objectives, and that the perception of the homegrown terror threat appears to influence the speed in which a policy is developed.

Cara Haxo

9:30 a.m.

Scheide Music Center 106

Music Composition Major

Advisor: Jack Gallagher

L'Imagination de Lenore

L'Imagination de Lenore is a song cycle in six movements based on the play LenORE, written by Carolyn Fado as part of her own Senior Independent Study. Her play, in turn, is based on the works of Charles Baudelaire and Edgar Allan Poe. LenORE is a play of dualities—English and French, film and theatre, past and present, reality and imagination—that are mixed together and confused as the play progresses. The title character, Lenore, gradually becomes the slave of her own imagination, which is personified by the male character Jean Transsen. LenORE also criticizes misogyny in literature, suggesting that Baudelaire and Poe 'kill' their young female characters in order to create the highest form of beauty. The six movements of the song cycle are based on crucial moments of the play and outline Lenore's dangerous passage into her imagination.

Kara Henn

9:00 a.m.

Severance 009

Biology Major

Advisor: Patrick Crittenden

Examining the Efficacy of a Killed Bivalent (H1N1/H3N2) Swine Influenza Virus Vaccine Co-Administered with Two Adjuvants when Challenged With the 2009 Pandemic H1N1 Virus in the Pig Model.

Seasonal influenza viruses kill up to 500,000 and infect 120 million people worldwide annually, necessitating new vaccines to be produced every year to contend with the emergence of new influenza strains. The current study examined the efficacy of a killed bivalent influenza vaccine given in conjunction with the adjuvants Î±-GalCer and PIM2 when challenged with the pandemic 2009 H1N1 influenza virus in pigs. Nasal swabs, plasma, lung lysate, and BAL fluid were examined to determine virus titers and influenza-specific antibody levels. Virus titers indicated that the amount of virus in vaccinated animals was greater than that of controls, and adjuvanted groups had an even greater virus titer than those vaccinated without adjuvants. Antibody levels indicated a lower amount of influenza-specific antibodies in vaccinated groups than unvaccinated groups. These data suggest that killed influenza vaccination is not only ineffective but can actually increase susceptibility to a subsequent infection.

Jenna Hohan

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Michele Leiby

Variation of Female Genital Mutilation Rates Between Egypt and Sierra Leone Examined Through Underlying Root Causes

The main objective of this thesis is to examine why Egypt and Sierra Leone have different reduction rates regarding female genital mutilation when they both have similar percentages of women in the country subjected to the practice. Furthermore, it aims to answer why Egypt is having greater successes in reduction than Sierra Leone. To understand and answer this question I chose to use a comparative case study to observe causal mechanisms that affect the rates of the practice, while also showing how these mechanisms are not sufficient enough in explaining the variation. This study argues that women's education, education specific to FGM and long-term NGOs can help explain the variation while also explaining why the practice occurs in general. The evidence shows that women's education plays a larger role in explaining why the practice is occurring and offers greater insight as to why Egypt is having more success in reduction.

Robert Holtz

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Chemistry Major

Advisor: Sibrina Collins

Anti-Cancer Metal Complexes: Synthesizing and Characterizing the Target 3,5-dimethylpyrazole-6(azaindole)pyridine (DAP) Ligand and Coordinating and Characterizing DAP to Gold (III) and Platinum (II)

Since the discovery of the antitumor drug, Cisplatin, Pt(NH₃)₂Cl₂ there has been a strong and continued interest in the development of metal-based cancer drugs that are less toxic. Although Cisplatin is a very effective anticancer drug, it is known to cause many severe side effects. Thus, designing new metal-based anticancer drugs is of interest. The goal of this research project is to synthesize and characterize platinum (II) and gold (III) anticancer complexes. Gold (III) is an attractive alternative because it is isoelectronic and isostructural to platinum (II). The coordination of a new ligand, 3,5-dimethyl-pyrazol-6(azaindole)pyridine (DAP) to the metal centers was investigated. The DAP ligand was prepared by copper-mediated cross-coupling reactions. The metal complexes were characterized using Density Functional Theory, Proton Nuclear Magnetic Resonance, Infrared Spectroscopy, and Ultraviolet-Visible Spectroscopy.

Jennifer Horton

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Greg Wiles and Shelley Judge

Dating the First Millennium AD Glacial History of Adams Inlet, Glacier Bay National Park and Preserve, Southeast Alaska

Glacier Bay National Park and Preserve, in southeast Alaska has a long and complex Holocene glacial history. The objective of this study is to determine the glacial history of Adams Inlet, using dendrochronology data from wood samples. Evidence suggests that series of ice dams lead to the creation of Glacial Lake Muir at 2500 yr. BP and Glacial Lake Adams at 1700 cal. yr. BP. This study presents new tree ring data and calibrated radiocarbon dates that detail the First Millennium AD (FMA) creation of Lake Adams in Adams Inlet. 86 tree cores and cross sections from detrital logs in Adams Inlet combined with a tree-ring-width series from Casement Glacier Valley show a kill event at 640 AD. No correlation between the kill dates and the location of samples was found, meaning Glacial Lake Adams filled the inlet during the FMA. Evidence in GBNPP and southeast Alaska support this statement.

Isabelle Howes

2:15 p.m.

APEX in Gault Library

International Relations Major

Advisor: Jeffrey Lantis

Who is Riding Shotgun? The Influence of Multinational Corporations on International Negotiation Outcomes

This independent study seeks to determine if multinational corporations influence the outcome of international trade negotiations. Specifically, I examined two international trade negotiations between the United States and the European Union in 1997 and 2005. In order to answer the question examined in this study, I surveyed scholarly literature pertaining to the research area. Robert Putnam and Jeffrey Knopf were the two scholars who rose to the forefront of this aspect of

my research. This literature enabled me to construct a theoretical framework to analyze my results. The bulk of my research consisted of two case studies on the negotiations in 1997 and 2005. The results of my analysis indicated that multinational corporations do influence the outcome of international negotiations. However, the type of government, the culture of the state and the culture of the corporation are all factors that will affect if a multinational corporation influences negotiation outcomes.

Kate Hunt

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: James West

Exploring the Fate of Thioredoxin Relay Proteins Modified by Organic Electrophiles

The fate of the thioredoxin proteins once inactivated is unknown. In this study, we examined the role of the proteasomal pathway in the degradation of the thioredoxin proteins once they were inactivated by ethyl vinyl sulfone (EVSF). The half-life of the thioredoxin proteins was analyzed using the protein translation inhibitor cycloheximide (CHX). Inconclusive results, from the half-life study, might be related to the PDR5 multidrug resistance gene. New strains were generated by transforming the pdr5^Δ fragment into Trr1, Trx2, and Tsa1 TAP-tagged strains. The newly transformed pdr5^Δ TAP-tagged strains were used in cell treatments with the proteasome inhibitor MG132. Following proteasome inhibition, we observed a subtle increase in accumulation of the thioredoxin proteins Trr1, Trx2, and Tsa1. We concluded that our study does support the theory that the proteasomal pathway is involved in the degradation of thioredoxin proteins. However, supplementary studies will be needed to provide more conclusive support.

Sarah Huttie

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Gary Gillund and Michael Casey

The Effects of Trait-Anxiety on Young Children's Facial and Vocal Emotion Recognition and Attention

A series of experiments explored the relationship between children's trait-anxiety and their performance on visual and vocal emotion recognition and attention. Children (N = 37) between the ages 4 and 6-years-old were given the Revised Children's Manifest Anxiety Scale(RCMAS-2)in order to determine each child's level of trait-anxiety. For each of the three experiments, participants were presented with a series of Ekman's faces that demonstrated one of six different facial emotional expressions (e.g., happiness, sadness, anger, surprise, disgust or fear). This experiment also looked at how the factor of trait-anxiety influenced one's attention towards either vocal or visual emotional stimuli. Results showed that trait-anxiety plays a role in a child's attention towards positive versus negative facial emotion expressions and also their attention towards vocal versus visual emotion stimuli. However, it was not evident that trait-anxiety played a significant role in a child's ability to recognize facial emotional expressions.

Jamie Innis

11:00 a.m.

Severance 009

Biology Major

Advisor: Laura Sirot

Effects of the Herbicide Atrazine on Drosophila melanogaster Courtship Behavior

Atrazine is an herbicide used extensively in the United States of America to kill broadleaf and grassy weeds. Research has indicated that atrazine has unintended negative functions as an endocrine disrupting chemical. Previous research demonstrated that atrazine exposure increases the latency to mating of male fruit flies, *Drosophila melanogaster*. This study examined the effects of atrazine on male *D. melanogaster* courtship behavior. Flies were reared in atrazine-treated environments and control environments with no exposure. Courtship behaviors—following, wing vibration, mount attempts, ovipositor extrusions, kicking, and latency to courtship—were observed in both small and large chambers. There were no significant differences in the courtship behavior of atrazine-exposed males in either small or large mating chambers, suggesting that atrazine does not affect courtship. Future research should consider investigating the role of pheromone production in *Drosophila* mating and whether there is a link between atrazine and latency to mate.

Ivy Jackson

1:00 p.m.

Lean Lecture Room

Spanish Major

Advisor: John Gabriele

From Peninsular Spain to the Indigenous Mapuche of Chile: Environmental Poetry and Activism

Ecocriticism, which is multidisciplinary in origin and cross-cultural in breadth, provides an effective methodological and theoretical approach to topics that are of concern in many cultures and societies across the globe. My study is transnational in scope. I analyze the lyrical significance of the environment in the poetry of the Peninsular Spanish poet Juan Ramón Jiménez (Nobel Prize 1956), the cultural significance of the environment in the poetry of indigenous Mapuche Chilean poets, and the sociopolitical importance of present-day activist environmentalist groups in Chile to illustrate how the cultural, the historical, the social, and the political intersect in the context of the environment in the modern Hispanic world.

Adrienne James

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Jeffrey Lantis

Do You Support the War?: A Study on the Effects of Private Military Companies on U.S. Troop Casualties and U.S. Public Opinion

This independent study seeks to understand the effects that private military companies, or PMCs, may have had on United States troop casualties and United States public opinion for the most recent wars in Afghanistan and Iraq. Based on the work of Deborah Avant and other PMC scholars, I hypothesize an inverse relationship between the number of PMC personnel and U.S. troop casualties. Next, based on the casualty sensitivity hypothesis, I hypothesize an inverse relationship between U.S. troop casualties and U.S. public support for the war. Finally, by way of the transitive property, I hypothesize a direct relationship between the number of PMC personnel and U.S. public support for the war. In general, however, my hypotheses do not hold, with the exception of the casualty sensitivity hypothesis for Afghanistan. I conclude my I.S. by putting forward potential explanations as to why my hypotheses were not supported.

Kelsey Jandrey

9:30 a.m.

Wishart 101

Women's, Gender, & Sexuality Studies and Sociology Double Major

Advisor: Christa Craven and Stacia Kock

A Dress Is Not A Yes: A Feminist and Sociological Analysis of Slutwalk as a Response to the Politics of Victimization

The focus of this study is to explore the purpose of Slutwalks and their perceived role in society. Slutwalk is a grassroots radical feminist protest against the phenomena of slut shaming and victim blaming. Much controversy surrounds this new form of feminist protest; the controversy needs to be examined in order to understand the goals and purpose of the Slutwalk. Some would argue that Slutwalks are not accessible to the entire population or all feminists. Slutwalks have arisen out of a culture that labels female victims as deviant. We must understand how this trend and the politics of victimization have evolved if we intend to understand the purpose of Slutwalks. Slutwalk as a new form of feminist protest has great potential to influence the future of the feminist movement as well as how society views victimization.

Adam Jankowski

1:15 p.m.

Kauke 305

International Relations and Chinese Studies Double Major

Advisor: Jeffrey Lantis and Rujie Wang

The Dao that Can be Spoken is not the Eternal Dao : National Role Conceptions and the Effects on Chinese Foreign Policy Behavior

Chinese foreign policy is an extremely dynamic factor in today's world. One way of trying to describe Chinese foreign policy is by determining national role conceptions of Chinese leaders. This study aimed to understand the development of Chinese foreign policy behavior by using national role conceptions. Three Chinese leaders, Deng Xiaoping, Jiang Zemin, and Hu Jintao, were analyzed to see if their national role conceptions corresponded to distinct foreign policy behavior. Speeches given by each leader were coded for certain words and phrases that would signify a certain national role conception. After the national role conceptions were determined, three aspects of foreign policy behavior that occurred during each leader's rule were studied in order to ascertain if the differing national role conceptions led to distinct foreign policy behavior. The case studies seemed to suggest that national role conceptions do have an effect on foreign policy behavior.

Gabriela Jaramillo

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Amber Garcia

"You'll only date who?" The Effects of Race and Racial Preference in Dating on Perceptions of Prejudice

Do target race and racial preference in dating influence people's perception of discrimination? This study collected data from a survey given to 187 White participants, recruited via Amazon Mechanical Turk. The survey included an online

dating profile that varied based on target gender (male or female), target race (White, Latino, or Black), and racial preference in dating (preference for only same race partners or no racial preference). Additionally, this survey included several questionnaires that measured people's perception of discrimination, pre-existing prejudice, attitudes toward interracial dating, and behaviors in relation to interracial dating experience. Results showed that White, Latino, and Black targets whose online dating profile stated no racial preference were evaluated positively. When these profiles stated a racial preference, however, participants rated Black targets significantly more negatively than White and Latino targets, providing support for aversive racism.

Kelley Johnson

9:15 a.m.

Kauke 038

Communication Studies Major

Advisor: Michelle Johnson

Heading into Overtime, The Tie Between Work and Life:

Exploring Factors that could Influence the Work-Life Balance of NCAA Division III Athletic Directors

The purpose of this study was to examine factors that could influence the work-life balance of NCAA Division III Athletic Directors. The factors explored were home and work support (including mentorship, resources, and programs), gender, responsibilities, leadership, and experience. Past work-life balance research included many occupations, but very little focus on athletic directing. This study, therefore, extended the scholarship and added to information on work-life balance published by the NCAA. The findings revealed that support (from work and home) and gender contribute to athletic directors' work-life balance. Likewise, leadership and experience related to work-life balance. One major implication to this study is that athletic directors should surround themselves with supportive persons.

Veronique Jones

9:30 a.m.

Kauke 305

Sociology and Philosophy Double Major

Advisor: David McConnell and Lee McBride

One Size Does Not Fit All: Spirituality and Academic Experiences Among African Americans

At first glance, racial identity appears to be a widely examined topic within academic fields. Yet researchers have failed to provide fully explicative accounts of how spirituality affects the academic experiences of African American college students, both male and female. The purpose of this project is to explore intersections of spirituality and academic experiences for African American college students, through an in-depth, qualitative analysis. Self-identifying, African American seniors and alumni of the College of Wooster were formally interviewed. Theoretical perspectives of Cornel West and Eddie Glaude provided the frameworks for interpreting African American identity, educational experiences, and spirituality through different historical contexts. Interviews exhibited the historical character of race and racism, the complex role of spirituality in students' lives, interpretations of liberation in terms of self-empowerment, and the complexities of racial identity. Engaging the interview findings with theories from both West and Glaude evinced the significance of recognizing the value of both commonalities and diversity within African Americans' experiences.

Justin Kalinay

10:15 a.m.

Lean Lecture Room

Anthropology and Classical Studies Double Major

Advisor: Pamela Frese and Monica Florence

Myth, Ritual, and Symbol and the Theory of 'Invented Tradition' as Applied to the Worship of Dionysos/Dionysus across Space and Time

My Senior Independent Study is a comparative study between the Classical Greek-era Mysteries of Dionysus, the Roman Imperial-era Cult of Dionysus, and contemporary Neopaganism. Utilizing a close reading of primary and secondary classical sources and the anthropological method of interview, I have isolated some of the key myths, rituals, and symbols of Dionysian cultic worship in three distinctive cultures situated in specific regions within particular spans of time. I verify this belief through the symbolic/interpretive anthropology of Victor Turner, Clifford Geertz, and Barbara Myerhoff and the culture/tradition creation theory of Eric Hobsbawm. The overall purpose of my I.S. is to identify the key features of Dionysian worship in order to highlight the multiple iterations of a specific expression of religion involving a personal, ecstatic union with one's deity, an initiation based on the revelation of the 'mysteries,' and a deep respect for mythology, its ritual interpretation, and the symbols enacted within ritual.

Erika Kay

1:00 p.m.

Taylor 111

English Major

Advisor: Nancy Grace

Lesbian Life Writing: A Multi Genre Exploration from The Well to Memoir

This project is a multi-genre exploration of lesbian life writing, starting with its earliest form and moving into contemporary discussions of autobiography and memoir. The discussion of the authentic lesbian voice in literature starts with Radclyffe Hall's *The Well of Loneliness*, published in 1928. A close reading with the help of Foucault's *The History of Sexuality* will set the stage of *The Well* as the first lesbian text that set out to break the heteronormative arc that was the basis for all other narratives, which included queer ladies into the late twentieth century. Filtered through this close reading and discussion will be my own form of life writing, short memoirs expressing a coming to terms with identity, meant to exemplify the importance of Radclyffe Hall's brave work in 1928 that has allowed predecessors of female queer writing to similarly find their own voice in juxtaposition with their cultural contexts.

Daniel Kellman

1:00 - 3:00 p.m.

Kauke 238

Sociology Major

Advisor: Pamela Frese

More than Meals on Wheels:

A Report and Analysis on Perspectives of Transportation Needs of Senior Citizens in Wooster, OH

Older adults lose their ability to drive for both physical, economic, and social reasons. When older adults do lose the ability to drive, many must rely on public transportation to allow them to keep their independence and live a high quality life. This study uses data from a survey of seniors (65 years and older) as well as interview responses from

representatives of transportation providers, transportation funding agencies, and a Senior Center to examine the transportation needs of seniors. This study uses responses from interviews and surveys to identify common themes between survey and interview responses. Results from this study show that elders seek to retain their independence through public transportation, transportation agencies lack programs for senior citizens and provide inconvenient services, and that the lack of coordination negatively affects the ability of seniors to access affordable and accessible transportation.

Julia Kennedy

2:30 p.m.

Kauke 038

Spanish Major

Advisor: John Gabriele

Quixotic Life Lessons: Theory and Practice

This study focuses on the life lessons in Don Quijote de la Mancha, written by Miguel de Cervantes in 1605 (First Part) and 1615 (Second Part). Literary classics can be applicable in current situations to teach valuable life lessons to people in any culture, society, and at any age. The goal was to first analyze and later modify certain episodes in the novel to teach several important, age-appropriate values to children: friendship, acceptance, gender equality, and knowing oneself. I wrote four original fables using characters and the episodes that I analyzed. The themes of each fable were the aforementioned values. During February, using the fables as a central activity, each value was taught to a group of five second-grade students. Student oral and written responses were assessed to determine the effectiveness of teaching each lesson to children, based on qualitative responses that indicated their level of comprehension.

Jordan Key

9:00 a.m.

Scheide Music Center 106

9:15 a.m.

Scheide Music Center 106

Music Composition and Religious Studies Double Major

Advisor: Jack Gallagher & Mark Graham

Spirosomy: Music and Spirituality, The Practice of Presence A Case Study in Human Manifestations of Spirituality through Music

How can music allow a man to see the face of God? How can music direct the spirituality of those creating, practicing, and listening to it? Music and sound have played a significant role in religious practice throughout and across human history and culture, but this sonic aspect of religious and spirituality has been significantly ignored. This thesis attempts to explore spiritual manifestations of people, both generally and specifically, through musical and sonic experiences, redirecting the focus of study in religion and spirituality from the visual to the aural, creating a concept of Spirosonance as compared to Theosonance.

The Mystic Mountain: 'NGC 3372' A Piece for Symphonic Orchestra and Solo English Horn

This piece was composed as a part of a double Independent Study examining human expressions of human spirituality through music. It was inspired, along with a number of other pieces included in the IS, by an off-campus experience made possible by the Copeland Fund. This money was used to send Jordan Key to France during the Summer of 2012, where he lived with the monastics of the Abbey of Solesmes, studying their experiences and manifestations of their spirituality through their chant.

Frank Kickel

10:15 a.m.

Taylor 110

Neuroscience Major

Advisor: Amy Jo Stavnezer

An Investigation of Triclocarban's Effect on Testosterone, Anxiety, and Objective Memory Capabilities

Previous research demonstrates that environmental exposure to endocrine-disrupting substances can influence early neuronal development and alter functioning throughout adulthood. Triclocarban is one such substance that has been previously researched for its physiological effects, although its behavioral associations have never been assessed. This research is intended to fill some of the existing gaps in the literature, and focuses upon the behavioral effects associated with triclocarban exposure. We exposed adult male Sprague Dawley rats to a 0.25% wt/wt oral dose for 10 days prior to experimental testing and continued this dosage throughout all experimental trials. The rodents were tested for anxiety in the elevated plus maze, learning and memory in the Morris water maze, and objective memory in the novel-object recognition task. The size and weight of several prominent accessory sex organs were also recorded after behavioral testing was complete.

Matthew Kirchner

1:00 - 3:00 p.m.

Freedlander Lobby

Neuroscience and Philosophy Double Major

Advisor: Amy Jo Stavnezer and Jamsheed Siyar

Accounts of Brain Disease: Exploring the Cellular Mechanisms of Obsessive Compulsive Disorder and its Implications in the Framework of Anomalous Monism as a Semantic Theory of Mind

The goal of this project is to better recognize, study, and treat brain disease in the framework of an appropriate philosophical position on the nature of the mind. This is important because approach to the mind will affect how we approach research questions in neuroscience. Obsessive Compulsive Disorder (OCD) is a brain disorder characterized by recognizable mental obsessions and physical compulsions. First, I hypothesize and test a cannabinoid agonist 1 (CB1) for OCD in a mouse model of marble burying (compulsive behavior). The CB1 agonist WIN 55,212-2 significantly improves compulsive behavior without any observable side effects ($P < 0.001$). After this, I note that while neuroscientific research assess and alters only the physical, it references mental states in a full description of brain disease. To align these perspectives, I argue for the position of anomalous monism. I conclude by emphasizing the inclusion of intensional statements to not only fully account for a mental event, but to more effectively treat a disorder.

Heather Kirk

9:00 - 11:00 a.m.

Gault Library for Independent Study

Women's, Gender, & Sexuality Studies Major

Advisor: Nancy Grace

The Glitter Bath: A Feminist Study of Race, Class, and Gender in Five Disney Classic Animated Feature Films

For my Senior Independent Study project, I looked at the intersection of race, class, and gender in the following five Disney animated films: Snow White, Cinderella, Beauty and the Beast, Aladdin, and Princess and the Frog. I analyzed

these films using feminist theories of intersectionality as well as race, class, and gender. I wove feminist theory in with my own understands and views of the films as well as a personal chapter that placed myself in the context of my research.

Krista Koeller

10:00 a.m.

Taylor 110

Biology Major

Advisor: Dean Fraga

Reconsidering the Classification of the Parrot Snake, Leptophis ahaetulla (Squamata: Serpentes, Colubridae) as a Single Species.

Leptophis ahaetulla is bright green, arboreal coulubrid snake found in South America and Trinidad and Tobago. It has been regarded as a suspiciously variable species, which indicates it may be a cryptic species complex. In this study, we compare 11 specimens of Leptophis ahaetulla using DNA sequences from the mitochondrial genes 16S and cytochrome b (1,383 bp total). The phylogenetic analysis reveals a strongly supported clade comprised of the island specimens, indicating they are a separate species from L. ahaetulla. Thus, Leptophis coeruleodorsus (Oliver, 1942), formerly a subspecies of L. ahaetulla can be given full species status.

Emily Koelmel

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology and Studio Art Double Major

Advisor: John Neuhoff

The Interaction Between the Physical Environment and Metaphysical States: The Role of Social Anxiety and Stress in Informing Spatial Perception

The current study looks at the interaction between social anxiety, stress, and spatial perception. Participants either did a variation of the Trier Social Stress Test or were in a control group, and then estimated spatial properties of a social stimulus, a video camera, as well as estimates of their own height. Participants completed the shortened Spielberger State-Trait Anxiety Inventory (STAI) and the shortened Social Interaction Anxiety Scale (SIAS). Results indicated a marginally significant trend for the stress condition perceiving the video camera as smaller and further away, a significant trend for participants with social anxiety seeing the video camera as significantly larger, and certain subsets of social anxiety accounted for seeing the video camera as closer. Results distinguish the role of stress and social anxiety in driving perception to prepare an individual for action, and implications are discussed in the realm of therapies for social anxiety.

Lara Koenig

10:15 a.m.

Kauke 305

English Major

Advisor: Bryan Alkemeyer

Sexually Ever After: Cultural Impositions on Psychosexual Development in Myth and Fairy Tales

A cross comparison of several myths and fairy tales that identifies literary elements such as themes, patterns, and symbols that reveal the effects of social and cultural pressures on the psychosexual development of both characters and readers.

Jocelyn Kopfman

1:00 - 3:00 p.m.

Wishard First Floor

Africana Studies Major

Advisor: Boubacar N'Diaye

Toward A New Approach: The Harms of a Racially Colorblind Education System and The Creation of a Positive Racial Identity at The College of Wooster

My IS argues for and aims to contribute a method that provides a healthy racial identity development process in the American education system. In order to accomplish this goal the IS critically examines the colorblind and multicultural approaches and finds that they are lacking in aspects that create positive racial identities. During the examination of the racial identity development theory I found that the racial identity development process has much to offer and is more promising based on documentary evidence and interviews with faculty, staff, and students at The College of Wooster. Based on this information I conceptualized a diversity workshop that focuses on the development of racial identity. The ultimate goal of the workshop is to allow members of The College of Wooster community to experience a positive racial identity development process. These positive racial identities of individuals will promote and support racial diversity on the campus and beyond.

Emma Kornhauser

9:15 a.m.

Lean Lecture Room

Sociology Major

Advisor: Abigail Adams

No Fracking Way: Activists' Motivations for Participating in an Environmental Justice Campaign

The purpose of this study is to gain insight into the personal and ideological motivations behind activists becoming involved in the campaign against hydraulic fracturing. Hydraulic fracturing, or fracking, is a natural gas drilling process that has been linked to ground water contamination, wellhead explosions, and toxic air emissions to name a few. It has become environmental justice issue, as it is perceived by many citizens as having adverse effects on the people and communities where drill sites have been placed. Through the methods of participant observation, in-depth interviews, and surveys this study aims to understand and learn about the reasons that activists are taking a stance of opposition. Furthermore, as hydraulic fracking is an environmental justice issue, this study will serve as a model to explain trends of activist motivations for participating in other environmental justice campaigns within the United States.

Bryan Kovalick

1:15 p.m.

APEX in Gault Library

Sociology Major

Advisor: Heather Fitz Gibbon

Democratic Not Radical: An Examination of Consensus in Four California Cohousing Communities

This study examines consensus as a process and product in four cohousing communities. Ten residents were interviewed to discuss their social life in cohousing, communal meetings, consensus, and community conflict and harmony. The themes were analyzed according to Lefebvre's sociospatial approach and Habermas' theory of communicative action. Both theories informed the evaluation of the sense of community in each site built through the consensus process, the structures

of the community meetings, consensually-agreed to proposals, and their shared lifeworld together. At two sites consensus builds a strong sense of community. At a third site consensus builds a sense a community, but only for the actively participating residents. At the last site no sense of community was built from its use of consensus. In evaluating cohousing communities as Lefebvrian 'differential space' and Habermasian 'liberated areas,' I find cohousing communities are not according to either theory radical.

Alexandra Kuzmishin

9:00 - 11:00 a.m.

CoRE in Andrews Library

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Biochemistry & Molecular Biology Major

Advisor: Julie Heck

A Preliminary Analysis of the Differences in Cyclosporin A Resistance between Amino Acid Residues P538 and P540 of the Hepatitis C Polymerase

The Hepatitis C virus (HCV) causes Hepatitis C, the leading cause of liver transplants in the US. The recommended therapy is not effective against all HCV genotypes and subtypes. Cyclosporine A (CsA), prescribed to prevent transplant rejection, exhibits anti-HCV activity due to its ability to bind human cyclophilin proteins that regulate the HCV replication complex. CsA sequesters cyclophilins, thereby disrupting HCV replication and lowering the viral titer. The HCV polymerase binds Cyclophilin B (CyPB) to augment RNA-binding, but is unable to do so in the presence of CsA. CsA likely sequesters CyPB, preventing it from binding the polymerase and thus inhibiting RNA-binding by the polymerase. Inhibited RNA-binding renders the polymerase unable to bind HCV RNA for replication, thereby preventing replication of the HCV genome and the subsequent steps of HCV's lifecycle. I studied two amino acids residues of the HCV polymerase key to HCV developing resistance to CsA.

Steven Kyle

10:30 a.m.

Taylor 110

Psychology Major

Advisor: Claudia Thompson

The Connections among Contagious Yawning, Attachment, and Empathy in Dogs (Canis familiaris)

The current study examined empathy, contagious yawning, attachment, and the relationship among them in dogs. The theoretical explanation of an evolved empathy suggests that if the mechanisms of empathy were evolved, a difference in response to other's emotions would be observed depending on how socially or genetically close an animal is to another. Contagious yawning has also been shown to be connected to the simple mechanisms by which emotions are transferred from one individual to another. The dogs in the present study were shown videos of owners and strangers yawning and their reaction was recorded. The dogs were then shown the owners and strangers either laughing or crying and the dog's response was recorded. The dogs were able to respond in an empathetic like way to the crying of the owner, but did not respond to the stranger and did not yawn contagiously.

Andrew Lamade

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Biochemistry & Molecular Biology Major

Advisor: James West

Protective Role of the Yeast Peroxiredoxin Tsa1 against Electrophile-Mediated Cellular Stress

The *Saccharomyces cerevisiae* peroxiredoxin, Tsa1, is responsible for the thiol-dependent detoxification of peroxides. Chemical modification of these catalytic cysteine residues is linked to its inactivation as a peroxiredoxin. However, Tsa1 protects yeast against the toxic effects of electrophiles. To ascertain the extent of this protection, Tsa1 was variably expressed in *S. cerevisiae* lacking endogenous Tsa1 and its homolog Tsa2. The relative expression of Tsa1 was correlated to enhanced survival in cultures treated with H₂O₂/electrophiles. Past studies indicate hyperoxidation of Tsa1 is accompanied by high molecular weight (HMW) complex formation, indicative of a transition from peroxidase to holdase. Live cell confocal fluorescent microscopy confirmed Tsa1-GFP treated with H₂O₂/electrophiles undergoes a relocalization event following modification. Additionally, Tsa1 undergoes a transition from a low molecular weight species to a HMW complex upon H₂O₂/electrophile exposure both in vitro and in vivo. Further experimentation is required to elucidate the HMW complex structure and mechanism.

Chris LaMantia

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: William Morgan

Modeling Phytophthora Genes through the Characterization of Intron Structure by the Detection of Splice Sites and Splicing Regulatory Elements

Phytophthora oomycetes are notorious in the agricultural industry as plant pathogens that have a significant economic impact through crop losses and high cost of preventative measures. Genomic analysis of these pathogenic species may reveal novel mechanisms to target in developing chemical control systems. The genomes of three prevalent Phytophthora species (*P. infestans*, *P. capsici*, and *P. sojae*) have been sequenced; however, the annotation of these genomes remains a work in progress. Two computational methods of gene prediction are presented, which attempt to accurately predict eukaryotic gene structure by combining extrinsic sequence features and ab initio predictions under a supervised learning platform. A support vector machine, trained on extrinsic sequence features of known genes, was used in an attempt to produce an accurate model of gene structure. A second annotation attempt was performed by the eukaryotic gene prediction suite GlimmerHMM, utilizing a generalized hidden Markov model and extrinsic splicing signals.

Matthew Lambert

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics and Computer Science Double Major

Advisor: R. Drew Pasteur and Sofia Visa

An Agent-Based Model of Influenza Within a College Population

Predicting the severity of a disease outbreak is an important task for health personnel and college administrators. Influenza is a disease that is commonly transmitted amongst college students. While traditional methods of mathematical

prediction utilize systems of differential equations to predict behavior at the macro level, agent-based models attempt to detail individual interactions over time. Agent-based models contain independent agents that follow a few given rules, so there is room for change and experimentation that would be difficult with traditional mathematical models. Through these rules, one hopes to discover the underlying behavior of the system at hand. Specifically, how disease spreads throughout a population of these agents, given some number of initially infected agents. Here, we create an agent-based model of influenza with a population of roughly 2000 agents and measure the effectiveness of two simple methods of decreasing the severity of an outbreak.

Emily Lanzola

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Liliana D'Alba

The Effects of Oxytocin on Stress, Learning, and Memory Retention in Female Rats

Stress, hormone levels, and exposure to chemicals can have negative effects on learning and memory. The aims of this study were to examine the effects of oxytocin, known for its anxiety-reducing effects, on stress, anxiety, learning and memory retention. This was done by comparing performance during Elevated Plus-Maze (EPM) and Morris Water Maze (MWM) tests in female rats. There were no significant differences between the oxytocin and control rats in the level of anxiety observed in the EPM. However, the control rats exhibited significantly less anxiety and the oxytocin-treated rats exhibited significantly more anxiety in the EPM. Learning and memory retention were not affected by either oxytocin treatment or stress-induced restraint. However, performance in the MWM improved with time. There were no significant differences in memory retention. These findings suggest oxytocin does not decrease anxiety in the EPM and oxytocin does not improve learning and memory retention in the MWM.

Kate Laubacher

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: John Jewell

Temporal Processing Across Geographic Regions: How Different Regions in the United States Perceive Punctuality

The present study examined how regionality may play a role in temporal perception, specifically relating to attitudes towards punctuality. Participants from the College of Wooster were drawn from three regions in the United States (Northeast, Midwest, and West Coast). The purpose of this study was to observe how geographic influences affect cognitive temporal factors, such as time processing. Participants were placed into one condition (either a 5-minute wait group or a 15-minute wait group) and asked to estimate how long they were waiting. Participants were also asked to rate their aggravation towards the wait. Differences between condition and region were then analyzed.

Lauren Lee

1:15 p.m.

CoRE Cube in Andrews Library

Political Science Major

Advisor: Matthew Krain

Don't Bite the Hand That Feeds You: The Effects of Structural Adjustment Lending on Voting Alignment in the UN General Assembly

During the third world debt crisis, the IMF issued structural adjustment loans as their new paradigm for economic development. Scholars have previously criticized these programs for placing undue restrictions on debtor states. However, I argue that structural adjustment programs (SAPs) do not just restrain states domestically. Instead, I ask the broader question of whether SAPs influence the international political behavior of debtor states, specifically their voting alignment in the UN General Assembly. I further ask which international actors hold this power of influence. I hypothesize that being under an SAP will cause states to align closer to powerful actors, such as the US, the G-7, or the IMF. By performing a large-n statistical study with panel data from 176 countries, I determine that being under structural adjustment increases voting alignment with the G-7, but not the US or the IMF. Lending can change political behavior towards certain actors.

Bryn Lindeman

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: Marilyn Loveless

Evaluating the Influence of Habitat, Temporal, and Competitor Insect Co-Occurrence Variables on the Presence of Lady Beetle Species in Gardens in Ohio

The Coccinellidae, or lady beetles, save agriculturalists millions of dollars in pesticide costs each year as they consume crop pests such as aphids. It is therefore important to preserve these beetles in our environment. In this study, data collected from the citizen science program the Buckeye Lady Beetle Blitz was analyzed in an attempt to determine which, if any, predictor variables significantly influenced the presence or absence of seven lady beetle species found in Ohio. The results of this analysis showed that each species differed in which variables were significantly predictive, but garden composition and sampling week were most often significant. While some of the relationships discovered may provide insights into the biology and ecology of these different lady beetle species, many of the relationships do not have an easily interpretable biological explanation. Further research will be needed to accurately determine which factors are most important in determining when a specific lady beetle species will be found in an area.

Samantha Lundeen

9:00 - 11:00 a.m.

Kauke 238

Anthropology Major

Advisor: P. Nick Kardulias

An Evaluation Of Cattle In The Lives Of Farmers In Wayne County, Ohio

With a general interest in how we as humans treat cattle and have placed such a high importance on them for our current and future lives, I am intrigued by the influence of cattle on current American culture. This study provides an evaluation of dairy and beef cattle farmers in Wayne County, Ohio, and their self-defined labels in terms of occupation and relationship to a herd. The following is an exploration of the economic, social, and ecological dimensions of raising cattle, and ultimately how cattle can be an influence on humanity. The research aims to determine how we place value on such a common animal, as well as define the value of cattle in modern society, through a focus on Ohio farmers.

Brian Lupish

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Biochemistry & Molecular Biology Major

Advisor: Paul Edmiston

Size Selective DNA Purification Using Swellable Organically Modified Silica

It was proposed that, with various chemical modifications, SOMS could also absorb DNA fragments less than 10,000 kilo-bases in size. Novel materials were synthesized, systematically varying the bis(trimethoxysilyethyl)benzene (BTEB) to trimethoxysilylpropyl-N,N,N-trimethylammonium (TMAPS) ratio to create cationic exchange type sorbents. These cationic SOMS were characterized using infrared spectroscopy and nitrogen porimetry. Absorption was tested by mixing TMAPS SOMS with a DNA standard solution and a solution of oligonucleotides, and measuring the DNA concentrations by gel electrophoresis (for plasmid DNA fragments) and UV spectrometry (for PCR primers). The SOMS composed of 40% and 50% TMAPS removed nearly all the DNA and oligonucleotides from the standard solutions, while the SOMS composed of lower percentages of TMAPS did not. Additionally, 2.5%, 5%, and 25% TMAPS SOMS that was preswelled in ethanol removed some of the smaller plasmid DNA fragments from the standard solution. These results indicate that a SOMS with specific percentages of TMAPS may be useful to extract DNA molecules of smaller sizes from solutions containing both large and small DNA molecules.

Christen Maguire

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: John Neuhoff

Does Auditory Perception Help Maintain Safety?: An Examination of the Relationship Between Auditory Perception and Injury Risk

Recent observations suggest that unintentional injury mortality has been increasing in the United States. This is a trend that can be easily changed through the use of interventions focused on lowering injury risk. In order for these interventions to be created, the factors that raise and lower injury risk need to be determined. The present study examined the relationship between auditory perception and injury risk. This study used multiple measures to evaluate this relationship. It was found that there is no significant relationship between the perception of looming sounds and injury risk. This relationship has not been explored in previous research and adds important elements to the existing body of injury research.

David Mallinson

9:00 a.m.

Wishart 101

Communication Studies and Economics Double Major

Advisor: Denise Bostdorff and James Warner

Seeds of Slavery: A Mainstream Economic Interpretation and Rhetorical Analysis of Vandana Shiva's Criticism of the Green Revolution and the Alienation of Rural Indian Women

The Green Revolution of the twentieth century ushered unprecedented agricultural expansion in the developing world. One of the primary beneficiaries of the movement was India, whose people witnessed tremendous gains in wheat and rice

output. Although many remember the Green Revolution fondly, some scholars have raised criticisms of the Green Revolution in the decades following the movement. One of the prominent critics is Vandana Shiva, who argued that India's Green Revolution disempowered women and nature. The purpose of this study is to examine Vandana Shiva's book, *Staying Alive: Women, Development, and Ecology*, through an interdisciplinary perspective. My analysis is three-fold: I employ ecofeminist rhetorical criticism to evaluate Shiva's argument that the Green Revolution oppressed and alienated women; furthermore, I use a game-theoretic model to illustrate Shiva's depiction of women's disempowerment in the context of intra-household decision-making; lastly, I test the economic theory through empirical analysis with data from India.

Chris Marshall

9:00 - 11:00 a.m.

CoRE in Andrews Library

History and Spanish Double Major

Advisor: Katherine Holt and Mary Addis

Túpac Amaru: Pachacuti

My research explores the uprising of Tupac Amaru II (1780-1781). I analyze the various intangible factors that led to the uprising, such as the influence of the Bourbon Reforms and other European wars. I analyze the daily effects of a corrupt colonial system that were experienced by both the participants and opponents of the movement. I attempt to clarify the misconception that the proponents of this movement were purely indigenous and, conversely, that their opponents were purely European or creole. Finally, I analyze the discourse of Tupac Amaru's movement and classify it as a reformist movement instead of an independence or anti-colonial movement.

Kari Martyniak

1:00 - 3:00 p.m.

Severance Hall Ground Floor

Biochemistry & Molecular Biology Major

Advisor: Crystal Young

Shedding Light on the DEAD: Preliminary Investigation into Dbp6, a DEAD-box Protein Required for Ribosome Assembly.

In order to correctly assembly eukaryotic ribosomes each and every time ~200 accessory factors are involved. One class of accessory factors are RNA helicases; the largest class of RNA helicases are DEAD-box proteins, named for the highly conserved D-E-A-D motif in their primary sequence. Dbp6 is a DEAD-box protein that is essential for the assembly of the large subunit in *Saccharomyces cerevisiae*. It is known that Dbp6 forms a complex with assembly factors Rsa3 and Nop8 and is essential in an early stage of ribosome assembly. To begin investigating Dbp6 a bioinformatic analysis was preformed determining that Dbp6 contains nine out of ten highly conserved motifs and is not found in bacteria. To initiate in vivo analysis Dbp6 was cloned into yeast expression vectors; however bacterial colony PCR results indicated cloning attempts were unsuccessful. Finally, to further explore Dbp6 binding partners conditions were optimized for overexpression of Nop8.

Chantel Massey

9:00 - 11:00 a.m.

Gault Library for Independent Study

English Major

Advisor: Leah Mirakhor

The Boondocks, Double Consciousness, and Minstrelsy

The Boondocks is about two African American males, Riley and Huey, from Chicago, now in Woodcrest, Maryland with their grandfather, Robert Freeman. My I.S will demonstrate how Aaron McGruder use Riley and Huey to create a hybrid between “double consciousness” and minstrelsy articulating a new black male performativity that challenges white normative assumptions. Establishing how modern black male identity is both a collaboration and separation of what both Riley and Huey represent. Riley represents the stereotypical African American male and Huey represents the African American male revolutionary in white America. Although McGruder articulates versions of the contemporary African American male identity, he fails to address the contemporary role of African American women. He depicts black women as ornaments and “scapegoats” instead of functional characters in The Boondocks comic strip and series. He overall demonstrates how both contemporary African American males and females still struggle to be accepted by white America.

Leo Mayhew

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Katherine Holt

Syrians, Sectarianism and Assimilation: Divergent Conceptions of Early Arab Nationalism in the Old World and New

The process of naturalization affected the early Syrian-American's community's view of Arab nationalism in a way that differed from Arabs who had not immigrated. By analyzing American and Arab-American newspapers and the existing literature on Arab nationalism, it becomes apparent that the assimilation process made the first wave of Syrian immigrants think of themselves as more Westernized than their counterparts in the Arab world. Because the intellectuals of the early Syrian community were Christians educated at Western missionary schools they played a leading role in advocating for Syrians embracing a white American identity. Whereas other Arab nationalists sought to replace and modernize traditional Islamic and Ottoman social structures with a pan-Arab nation, becoming American made the Syrian-American intelligentsia see themselves in contrast with their Muslim neighbors. As a result, they framed their arguments for an Arab nation around the Arab world's cultural contributions to the West.

Mark McDonald

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Liliana D'Alba

The Effect of L-Arginine Supplementation and Training on Physical Performance in Male Rats

The purpose of this study was to determine the effect of supplementation of the amino acid L-arginine on the strength and endurance of male rats when used in conjunction with training and used alone. Time until exhaustion as well as body mass were recorded and compared over the 3-week study. Blood samples were also taken to determine glucose and lactate dehydrogenase (LDH) levels after the study. The results of this study showed that L-arginine is an effective supplement for increasing endurance in conjunction with training but not by itself. This supplement was also effective in increasing strength performance while training. The findings of this study suggest that L-arginine could be a good option for athletes that are looking to increase strength and/or endurance but don't want the extra weight gain associated with other supplements like creatine, such as wrestlers or long distance runners.

Kyla McEntire

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Michele Leiby

Human Rights Organizations As Agents Of Change: When Do They Fail And When Do They Succeed?

As a key actor within the human rights transnational advocacy network, NGOs, such as Amnesty International, strive to shape individuals' values on such contentious issues as the use of torture and to mobilize them to act on their values. While much has been written describing this advocacy work, little systematic research has been done evaluating its efficacy. I have conducted archival research to identify the three most common messaging techniques employed by AI: (1) informational frames (2) personal frames and (3) motivational frames. I then tested the efficacy of each of these strategies using experimental analysis. This paper bridges the gap between the advocacy and scholarly communities by empirically examining the messaging techniques commonly employed by human rights NGOs and offering suggestions for more effective campaigns.

Nicole McFarlane

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: William Morgan

Phytophthora infestans, Phytophthora sojae and Phytophthora capsici are three of the most devastating and studied plant pathogens. Previous researchers identified approximately 450 genes in the P. infestans genome that are specifically induced during infection. However, the regulatory mechanisms for these genes are currently unclear. This study provides a computational approach to the identification of the infection-induced transcription factor binding sites (TFBS). Computational analysis revealed that 162 of the infection-induced genes are represented in all three species. PhyloCon analysis generated the most dominant motif, 'CAGC', within the promoter region of the three species. This motif is similar to previously identified motifs in the Homo sapiens genome. However, further work needs to be done in order to confirm these results, and determine the transcription factors (TFs) that bind to the identified TFBS. These results should prove useful in determining the TFBS and the TFs responsible for infection in each organism's specific host.

Henry McGee

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Richard Lehtinen

The Identification of the Freshwater Fish of Tobago Using DNA Barcoding and Morphological Analysis: An Integrative Approach

There is currently no species list of the freshwater fish found on the island of Tobago. Integrative studies using both molecular and morphological techniques have successfully identified species existing in specific geographical areas. In this study, 23 fish were collected from 7 different river systems in Tobago. Partial sequences of the mitochondrial gene cytochrome oxidase subunit 1 were used to barcode identifying 5 different species. Analysis using Kimura 2-parameter

sequence divergences and morphological comparisons were also used for species identification. Three individuals were unable to be identified using both molecular and morphological analysis. This is the first attempt to catalogue the freshwater fish of Tobago using both molecular and morphological analyses. Overall, the results show the effectiveness of using an integrative approach to catalogue the freshwater fish of Tobago and will hopefully encourage other biologists to continue to study fish on the island.

Julie McGowan

10:15 a.m.

Taylor 111

Comparative Literature Major

Advisor: Carolyn Durham

Lions and Tigers and Foxes, Oh My!: A Bibliotherapeutic approach to Le Petit Prince and The Wonderful Wizard of Oz.

My independent study is about bibliotherapy and how it may be used in the context of children's literature. Bibliotherapy is centralized around the idea that reading allows people to remove themselves from their own frame of mind, which helps them to then gain a different perspective on their own situation. I focus on one French text, *Le Petit Prince*, in comparison to an American text, *The Wonderful Wizard of Oz*. Through looking at these two texts in the context of bibliotherapy I explore the ways in which children read and what lessons they learn through reading these particular texts.

Lee McKinstry

2:15 p.m.

Taylor 110

English Major

Advisor: Daniel Bourne

Since It Began: A Collection of Poetic Daguerreotypes

A poetry collection and family history, based on my grandmother's upbringing in rural Kentucky in the early 20th Century.

Jessica McQuigg

9:00 a.m.

Taylor 110

Biology Major

Advisor: Marilyn Loveless

*A Reassessment of the Conservation Status of a Critically Endangered Neotropical Frog, *Mannophryne olmonae*, Using Occupancy Modeling Techniques*

Amphibian species worldwide are threatened with decline and extinction, making species monitoring an important scientific endeavor. The Bloody Bay Poison Frog, *Mannophryne olmonae* (Aromobatidae), a Tobago island endemic, was identified as critically endangered by the IUCN in 2004. Recent evidence suggests that a less severe conservation status may be appropriate for *M. olmonae*. This study employs acoustic calling surveys, land-use information, and multi-year (2011 and 2012) occupancy modeling techniques to propose an appropriate conservation status for this species. This study suggests that *M. olmonae* occupies a larger geographic range than was previously thought, and is not experiencing

population declines. These findings, in conjunction with other data, suggest that this species does not require the conservation status of critically endangered and should be re-classified as vulnerable.

Lindsay McQuiston

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: William Morgan and Anne Dorrance

The Effect of Exogenous Nitric Oxide on Soybean Defense Response to Phytophthora sojae

Phytophthora sojae is a host specific devastating pathogen that causes Phytophthora stem and root rot, which severely affects soybean production. The most useful tactic in controlling this disease is to plant partially resistant cultivars of soybean. Increased resistance has been linked to increased nitric oxide activity upon infection and therefore it was hypothesized that exogenously increasing nitric oxide would increase resistance in susceptible and partially resistant varieties. The effect of exogenous nitric oxide on soybean defense against P. sojae was examined through changes in average lesion length and infection efficiency of susceptible and partially resistant cultivar. A trend was observed where the 5 μ M treatment in the first experiment resulted in shorter average lesion lengths than the control. However, overall these findings suggest that strictly exposing plant tissue to nitric oxide did not increase resistance. Future work is needed to assess gene expression changes associated with varying levels of nitric oxide.

Stephanie McShane

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Amber Garcia

The Effect of Context on the Evaluation of Obese vs. Average-Weight Children As a Function of Antifat Attitude

The current study examined the stigma related to obesity, specifically, the effect that stereotype-consistent and stereotype-inconsistent activity contexts have on individuals' evaluations of obese and average-weight target children. Subjects viewed a photo of an obese or average-weight boy, accompanied by a vignette that indicated his enjoyment of either videogames or soccer, and rated him on several traits. Subjects also completed implicit and explicit measures of antifat bias. Results indicated that the obese target was rated more negatively than the average-weight target, and that the interactions between weight and activity condition were significant only when examining participants with low antifat attitudes. Those who indicated high antifat attitudes rated the obese target more negatively than the average-weight target across activity conditions. Implications of these findings are discussed from an educational standpoint, and encourage future research in the area of weight-based stigma and its effects on children's health and academics.

Samuel Mermall

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: John Lindner

The Motion of a Flapping Flag: Chaos or Noise?

This experiment sought to categorize the flapping motion of a flag to be either chaotic or noisy. Time series were collected for airspeeds off of the flag's trailing end and the drag force it experiences. Several minutes of data were analyzed using delay-coordinate embedding, Fourier analysis, and 3D trajectory reconstruction. This data indicates that a flag's flapping motion is dominated by weakly colored noise at lower airspeeds and white noise at higher airspeeds. The 3D trajectory reconstructions were done using a stereoscopic triangulation system. It was designed to use a single high-speed camera and a series of mirrors configured such that parallax provided the means to triangulate the point's position in 3D space. Position data was collected for several seconds before it was read and interpreted using Wolfram Mathematica, producing 3D trajectory plots of this motion over time. These plots show how the flag's fluttering changes qualitatively with increasing airspeeds.

Maricela Metraux

10:15 a.m.

APEX in Gault Library

History Major

Advisor: Jeff Roche

With Strong Arms and Callused Hands: A Study of Mexican Racial Identity in the Bracero Program From 1942-1964

My Independent Study analyzes the bracero program, a bilateral contract labor program which allowed Mexican workers perform agricultural and railroad labor in the United States. Although the legislators originally enacted the program to supplement American labor during World War II, the bracero program lasted until 1964. Within the context of the bracero program's history, I specifically focus on how perceptions of Mexican racial identity and stereotypes of braceros affected the bracero program. The Mexican government, American agribusiness employers, American labor unions and Mexican American civil rights groups each held different assumptions of braceros, which affected their reaction to the bracero program. While I deconstruct these 'outsider' images of braceros, I also use oral histories to analyze braceros' own self-perceptions, and how this helped them regain agency in an oppressive and exploitive labor exchange.

Grace Miller

2:00 p.m.

CoRE Cube in Andrews Library

Religious Studies Major

Advisor: Joan Friedman

Hospitality, Homosexuality, and Hazel-Nut Hurling: A Comparison of Genesis 19 between Judaism and Islam through Midrash and Tafsir

Most studies on the comparison of Judaism and Islam neglect Genesis 19 and the figure of Lot. This Independent Study seeks to analyze the similarities and differences between the Jewish and Islamic understanding of the Sodom and Gomorrah narrative. Critical historical and literary approaches illuminate the nuances of the text, its goals, its characterizations, and its function within the body of scripture. This analysis of the exegeses and the scriptures illustrates any possible overlap between them. This study tests the line of textual transmission from the Torah to the Qur'an and then to the Tafsir, looking for any connection between the Midrash, the Torah and Tafsir. The similarities in certain elements like the sins of Sodom reveal the close connection of these religions. The narrative changes significantly, moving the focus from hospitality to homosexuality in Judaism to Islam, but the shared elements highlight the connected nature between these two traditions.

Emily L. Mitchell

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Art History Major

Advisor: Diana Presciutti

Lost and Found: The Life and Art of Vivian Maier

This project examines the life and artistic work of Vivian Maier (1926-2009). Following her death, Maier's exceptionally large collection of street

photography, shot on an almost daily basis between the early 1950s and the

1990s, has become of interest for many in the field of Art History and amongst the public. The collection was discovered in 2009 after boxes from an abandoned storage unit, once belonging to the artist, were auctioned off in Chicago's North Side. To date, no one has written about her work at length from an art historical approach, combining formal analysis of her photographic work and the context necessary to fully understand and appreciate it. I ground my thesis in the close examination of her photography, focusing on her self-portraiture and street photography in the broader context of her own collection and in the canon of 20th century photography.

Sarah Mitchell

10:40 a.m.

Scheide Music Center, Gault Recital Hall

1:00 - 3:00 p.m.

Freedlander Lobby

Music Composition and Psychology Double Major

Advisor: Carrie Culver and John Neuhoff

Sing Your Heart Out, (or how Glee is not real life.)

The song recital was an extremely popular form of entertainment in the 1880's - 1940's but for a variety of social and technological reasons has fallen out of favor except in academic circles. This presentation will present and explore some of the highlights of the form, and will outline the unique historical events that came together to grow and then diminish its popularity.

Say What? The Use of Age as an Identifier on the Auditory Stroop Effect

This study expanded auditory conflict processing into age characteristics of the voice and age-related words, tested through the auditory Stroop effect. In experiment 1, participants heard the words 'old' and 'young' spoken by young children and older adults. When the stimuli heard were incongruent with the age of the speaker, participants responded slower and with less accuracy. In experiment 2, naïve participants judged the age of the same speakers, only this time the stimuli were comprised of words associated children and older adults. Similar congruency effects for number of errors were found. This study opens the door for furtherings of the auditory Stroop effect, both to better understand the relationship between vocal characteristics of age and stereotypes about age, and the expansion of the auditory Stroop effect into other vocal characteristics.

Daniel Montagna

1:00 - 3:00 p.m.

Severance Hall First Floor

Biochemistry & Molecular Biology Major

Advisor: Julie Heck

Investigating cis-Elements of Microtubule-Associated Protein Tau's 3'-Untranslated Region

As of 2011, Alzheimer's disease (AD) is the sixth most common cause of death in the United States. Like many other neurodegenerative diseases, AD exhibits dysregulation of microtubule-associated protein tau. Work by Roberson and colleagues in 2007 previously suggested that reduction in tau could be an effective treatment for AD. In an effort to discover cis-regulatory elements of tau as potential targets for manipulation of its expression in humans, we examined tau's 3' untranslated region (3'-UTR). By cloning five fragments of the tau 3'-UTR into a luciferase reporter construct and transfecting into SH-SY5Y cells, we determined which fragments might contain expression-modulating cis-elements. The transfection control for our luciferase assays, Renilla luciferase, repeatedly failed to express above background due to poor transfection efficiency, revealing the need for a better cellular model. We hypothesize that the integrity of miR-34a's binding region is essential for the expression-suppressing function of tau 3'-UTR fragment 954-1869.

Katherine Montgomery

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Hayden Schilling

Shooting an Elephant: How the British Became the Leading Imperialist in Africa and the World

This study discusses the interests of Great Britain in Africa during the era of imperialism. It mainly focuses on the events that occurred between 1884 and 1902 as well as how Great Britain got there. This means that the study looks at how the British built their empire as well as the effects their policies had on the African colonies. In addition to the British Empire, the study also discusses some of the interests and policies of France and King Leopold II of Belgium. These two other empires are given special attention because of their relationship to Britain. This study is also meant to be used as a guide for teaching imperialism at a high school level.

Joseph Morgan

10:30 a.m.

Taylor 111

Psychology Major

Advisor: Susan Clayton

The Effects of Presentation and Individual Differences on Narrative Engagement

The present study examined the relationship of empathy, need for affect, mental imagery, and need for cognition with narrative engagement in three different types of media: the novel, graphic novel, and movie. The study consisted of 61 participants (34 males and 27 females) from the College of Wooster who were recruited through SONA Systems Ltd. and volunteers. Subjects were divided into three groups, novel, graphic novel, and movie group, in which their levels of empathy need for affect, mental imagery, and need for cognition were measured. They were exposed to a short narrative and then their levels of narrative engagement were measured. No significant predictors were discovered in all three groups. Empathy and Need for Affect were both significantly and positively correlated with narrative engagement in the movie group. Implications of these findings and suggestions for future research are discussed.

Melissa Morgan

10:00 a.m.

Severance 009

1:00 - 3:00 p.m.

Severance Hall First Floor

Chemistry Major

Advisor: Paul Edmiston

Metal Ion and Phosphate Binding Organosilica Sorbents for Nutrient Recycling

Phosphate is a major component of synthetic fertilizer, which often leaches into rainwater run-off from agriculture fields into natural waterways. Nutrient run-off has resulted in widespread eutrophication (ex. in the Gulf of Mexico and Lake Erie). In terms of sustainability, recovery of phosphate from run-off could be valuable in terms of reapplication, thus extending finite supplies of the mineral resource. My project focused on developing materials that selectively bind phosphate through nanoscale engineering and modification of porous organosilica materials. Installation of sorbent-enhanced bioswales in agriculture fields for environmental protection and phosphate recycling was examined from both chemical and economic perspectives.

Katherine Morton

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Michele Leiby

Neglected Human Rights: Examining the Causes of Socio-Economic Rights Violations within the Occupied Palestinian Territories

Socio-economic rights include the right to water, right to housing, right to employment, and right to education among many others. These rights are systematically denied around the world, but relatively little research has been done to examine state abuses of these rights. Specifically, this study seeks to understand the causes of socio-economic rights violations within the Occupied Palestinian Territories. A longitudinal case study employing the method of difference, is used to investigate the researcher's hypotheses that Israeli public opinion and government leadership are key explanatory variables behind violations of socioeconomic rights within the Occupied Territories. This study finds overall moderate evidence to support the researcher's claims.

Lucy Moser

1:00 - 3:00 p.m.

Severance Hall First Floor

Chemistry Major

Advisor: Paul Bonvallet

Investigating the Host-Guest Chemistry of Calixarene-Capped Azobenzene

Calixarene-capped azobenzene (CCA) is a photoresponsive molecule, which upon irradiation with 384 nm light, will isomerize from the trans to the cis configuration. The isomerization of CCA gives it the potential to act as a controllable host for the capture and release of guest molecules. The goal of this project is to synthesize two guest molecules to test the host properties of CCA. The first synthesized guest, N,N'-dimethyl methylene diimidazolium bis(hexafluorophosphate), or

(1), was combined in an equimolar mixture with CCA. ¹H-NMR spectra of the equimolar (1):CCA mixture before and after irradiation with 384 nm light show no significant changes, therefore (1) is not a suitable guest for CCA. This process was repeated for the second synthesized guest, N-methyl-N'-phenylimidazolium iodide, or (2). Again, ¹H-NMR spectra of the equimolar (2):CCA mixture before and after irradiation show no significant changes, therefore concluding that (2) is not a suitable guest for CCA.

Kate Mozynski

10:30 a.m.

Lean Lecture Room

International Relations Major

Advisor: Kent Kille

The Evolution of International Sovereignty Norms and the Process of State-Level Norm Internalization

This thesis seeks to address both the evolution of international sovereignty norms and the process of state-level internalization of these norms by working across international relations theories. It poses the following, two-part, research question: have international legal sovereignty norms evolved, and if so, by what process have states internalized new sovereignty norms on the domestic level? It hypothesizes that traditional constructs of Westphalian sovereignty have evolved into a new sovereignty-modern norm, which is characterized by the emergence of positive rights in international law. It further hypothesizes that international norms frame domestic level cost-benefit analysis on the state level, which leads to domestic level internalization or rejection of these new norms in domestic law. It tests this theory with a comparative case methodology, which encompasses two series of quantitative content analysis and a series of textual analysis of state-level cost-benefit decision-making. It concludes with a discussion of the study's implications.

Anna Mudd

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Meagen Pollock

Clay mineral analysis and paleoclimate interpretation of a middle Miocene paleosol in the Powder River Volcanic Field, Northeast Oregon

Paleosols (fossil soils) often contain geochemical, mineralogical, and structural soil features as indicators of past climates. As sources of paleoenvironmental data, they contribute to the terrestrial climate record. Several paleosols are preserved between volcanic deposits in Northeast Oregon. Outside of Elgin, OR, the clay mineralogy of the Cricket Flat paleosol (~14 Ma) was studied to obtain a paleoclimate interpretation of the middle Miocene. XRD analysis and SEM microphotography was performed on three clay samples from the soil profile and results indicate that halloysite (7Å..., 10Å... and 14Å...) and calcian montmorillonite are the dominant minerals present. These clays commonly form from the weathering of volcanic material, the rock type upon which the Cricket Flat paleosol formed. This clay mineral assemblage suggests that the soil developed in a humid and warm temperate climate with low to moderate rainfall and a distinct dry season. These results fit within the Miocene climate record.

Caitlyn Murphy

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Hayden Schilling

Pocket Full of Posies: A Comparative Study of Plague in Florence and London

My Independent Study is a study of one of the most traumatic outbreaks to ever strike the world population, the plague. The plague caused fear and panic to spread across the world. The wave of plague known as 'the Black Death' occurred between the fourteenth and seventeenth century. Prior to this outbreak, health and sanitation practices were lacking. Many things resulted from the plague including the development of sanitation practices, disease prevention, documentation of disease and public health management administrations. The general community reacted in many ways, some relying on their religious communities or creating art inspired by the epidemic. This study looks at the cities of Florence and London, comparing their actions and decisions. Both cities looked to tackle and contain the epidemic. The comparison of these cities allows us to see what worked well and what developments were beneficial when dealing with such a dangerous outbreak.

Wesley Murphy

1:00 - 3:00 p.m.

Severance Hall First Floor

Biochemistry & Molecular Biology Major

Advisor: James West

Recent work has demonstrated that thioredoxins recognize and repair additional thiol modifications including cysteine S-sulfation, S-nitrosylation, and S-glutathionylation. Given that oxidized substrates of *Saccharomyces cerevisiae* thioredoxins like the 2-cysteine peroxiredoxin Tsa1 are also targeted by organic electrophiles and that several classes of electrophiles react reversibly with thiols, the roles thioredoxins play in protecting against reversible electrophilic damage were explored in yeast. To this end, the acute toxicities of the reversible electrophiles n-butyl-isothiocyanate (BITC) and 2-nitrofurane (NF) were determined in the thioredoxin deficient yeast strains *trx1Δ* and *trx2Δ* and wild-type yeast. Single thioredoxin deletion strains *trx1Δ* and *trx2Δ* showed a similarly small amount of increased sensitivity to both BITC and NF, indicating that thioredoxins confer some protection against reversible electrophiles. Gene deletion constructs for *trx2* and *trr1* were made and will be used to make *trx1Δtrx2Δ* and *trr1Δ* strains to more fully evaluate the importance of thioredoxins in conferring protection against NF and BITC. Tsa1 and Trx2 GST fusion proteins were successfully constructed and expressed.

Alexandra Muto

9:00 - 11:00 a.m.

Gault Library for Independent Study

Women's, Gender, & Sexuality Studies Major

Advisor: Nancy Grace

Making Fun of the World and Observing It: An Examination of Viewers' Interactions with Comedy About Gender and Masculinity in the Apatow Company's Films

In recent years 'lad flicks' have grown in popularity, a film genre Hansen-Miller and Gill conceptualize as focused on the struggles of Caucasian, heterosexual, Western men to understand masculine social expectations at a time when masculine hegemony is under question (37-41). Many sources inquire whether the films critique increasingly equitable social roles or support the expansion of sexual boundaries. My study analyzes viewers' reactions to the films of the Apatow Company, the most popular production company of the subgenre. As limited research exists about disparagement humor, or humor that belittles people on the basis of social identity, I also analyze reactions to the films as an example of how humor can

perpetuate social inequality. My methods include literary analyses of the Apatow Company's films and reviews, as well as surveys. I find that reactions to the movies vary but the films can promote viewers' acceptance of troubling gender norms as an irreversible aspect of social life.

Mary Nappi

1:00 - 3:00 p.m.

Severance Hall First Floor

Chemistry Major

Advisor: Karl Feierabend

The Kinetics of the Reaction of Tartronic Acid with the Hydroxyl Radical

Organic compounds are extremely prevalent in wastewater and in the atmosphere, and often react with oxidants like the hydroxyl radical in these environments. Tartronic acid is likely a product of the oxidation of organic compounds in both environments. The reaction between tartronic acid and the hydroxyl radical can serve as a model for similar reactions in the aqueous phase to better understand their degradation products, as well as mechanistic details of the reaction. In this study, high performance liquid chromatography (HPLC) was used to track the reactants and products as the chemistry progressed; UV-vis was used to determine the amount of hydroxyl radicals present. It was determined that 300 nm light provided better insight to the progress of the reaction. The products of the reaction could not be characterized based on HPLC, but predictions were made based on literature. Deuteration of the dicarboxylic acid was potentially successful for future work using the kinetic isotope effect to better understand the mechanistic details of degradation.

Clare Nelson-Johnson

9:00 - 11:00 a.m.

Freedlander Lobby

Communication Studies Major

Advisor: Michelle Johnson

Living The iLife: A Descriptive Analysis of the Impact of Technology on Dating Relationships

There has been a shift from using technology for professional purposes into relying heavily on technology in the realm of our relationships. The purpose of this study was to investigate how people in romantic relationships perceive the impact of technology on their relationships. This study focused exclusively on the perceived impact that various forms of technology have on partners and their overall relationships. This study honed in on relational attributes such as intimacy, satisfaction, and affection that have yet to be greatly researched in the context of romantic relationships and technology. Data was gathered through surveys and diaries. Results yielded provide several important findings. We have become tethered to our devices, driven by the expectation of instant gratification and communication. Today, society as a whole sits right in the middle of this communication transformation, which will continue to redefine the way we interact for the foreseeable future.

Amy Newton

9:00 - 11:00 a.m.

Gault Library for Independent Study

English Major

Advisor: Thomas Prendergast

Finding Meaning at the End of the World(s): Life, Death, and Identity in Battlestar Galactica

In the re-imagined *Battlestar Galactica*, the tensions between man and machine reveal insights into real-world anxieties. The show presents complex fears about autonomy, identity, and the meaning of life and death in such a way that the audience must acknowledge and engage with uncomfortable topics. The conflict between the human characters and the humanoid Cylon robots complicates the relationship between the self and the other as well as the dichotomy between good and evil. In a post-apocalyptic universe, human and Cylon characters must struggle to define themselves while surrounded by death and plagued by questions of faith. The characters learn to give meaning to their own lives in a universe in which history is a repetitive and eternal cycle. The narrative of the show presents this life and death cycle to the audience as the characters either succeed or fail in their endeavors to create identities and achieve meaningful deaths.

Lydia Niemi

9:30 a.m.

Taylor 110

1:00 - 3:00 p.m.

Severance Hall First Floor

Chemistry Major

Advisor: Michelle Hoffman

Quantitative Determination of Select Antidepressants and Their Primary Degradation Products in Lagoon Sludge and Biosolid-Amended Soil via LC-MS/MS Analysis

The use of sludge produced from wastewater treatment plants as fertilizer is a potential route for antidepressants to enter the terrestrial environment, where little is known about the impact on ecosystems. Monthly lagoon sludge samples were collected from June 2012 to February 2013 from the Wooster Water Pollution Control Plant, and soil samples were collected from a biosolid-amended field. A microextraction method was developed for the extraction of twelve antidepressant compounds from lagoon sludge and soil. Liquid chromatography-tandem mass spectrometry was used for the quantitative determination of the target antidepressants in the sample extracts. Sertraline, fluoxetine, citalopram, paroxetine, duloxetine, nortriptyline, norfluoxetine, and norvenlafaxine were the most commonly detected antidepressants in the lagoon sludge samples at concentrations up to 420 ng/kg (nortriptyline). No antidepressants were detected in the biosolid-amended soil.

Alexa Norris

1:30 p.m.

Severance 009

English Major

Advisor: Daniel Bourne

Grand Owl Habitat: A Collection of Poetry

My Independent Study is a collection of 30 plus poems about both nature and personal relationships.

Gregory Norris

1:00 - 3:00 p.m.

Freedlander Lobby

Neuroscience Major

Advisor: Amy Jo Stavnezer

The Administration of a Novel Chemotherapy Agent in a Brain Tumor Mouse Model

Atypical teratoid rhabdoid tumor (ATRT) is a highly malignant pediatric central nervous system tumor. The prognosis is often poor, with a 2-year survival rate estimated at 15%. We tested the Pfizer-developed, targeted chemotherapy agent PD-0332991, which functions by inhibiting cyclin-dependent kinase 4/6. Fragments of human pediatric ATRTs were xenografted into immunodeficient mice to create a mouse model of the disease, and tumor cells were propagated in vitro. The drug reduced levels of phosphorylated retinoblastoma both in vitro and in vivo, suggesting that the drug was acting on the desired target. PD-0332991 treatment was also found to significantly reduce levels of the proliferation marker Ki-67. Mice bearing ATRT flank tumors were then treated with drug or vehicle daily for 60 days. The drug-treated group showed complete tumor regression. These results demonstrate that PD-0332991 is efficacious for the treatment of ATRT, and warrants further study in the treatment of this disease

Jonah Novek

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Mark Wilson

Analysis of a Rhuddanian (Llandovery, Lower Silurian) sclerobiont community in the Hilliste Formation on Hiiumaa Island, Estonia: a hard substrate-dwelling relict fauna

The Hilliste Formation on the island of Hiiumaa, western Estonia, is a Rhuddanian (Llandovery, Lower Silurian) sequence of limestones and shales. It represents some of the earliest Silurian rocks on the paleocontinent of Baltica. The depositional system was tropical and shallow marine. Major taxa in the Hilliste Formation include crinoids, trilobites, bryozoans, corals, stromatoporoids, gastropods, and brachiopods. Sclerobiont communities (organisms that lived on or within hard substrates) have yet been previously described from the Hilliste Formation of Estonia. Many sclerobionts were found in the Hilliste Formation including crinoid holdfasts, cornulitids, sheet-like bryozoans, runner-type bryozoans, halysitid corals, and auloporid corals. These encrusters, along with the macrofauna, have a distinct Late Ordovician aspect and could represent a relict fauna. Several Hilliste sclerobionts studied are common in the Upper Ordovician, for example, the genera *Corynotrypa* and *Cornulites*. This fauna is comparable to that of the Cincinnati.

Dana Obery

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Patrick Crittenden

A Multi-Faceted Approach to Assess the Roles of Granulocytic Myeloid-Derived Suppressor Cells and Neutrophils in Sunitinib-Based Treatment of Renal Cell Carcinomas

Myeloid derived suppressor cells (MDSC) are increased in human renal cell carcinoma (RCC) patients and mediate tumor growth by promoting angiogenesis and immune suppression¹. The tyrosine kinase inhibitor sunitinib reduces MDSCs and subsequently shrink the RCC tumor after one treatment cycle. In subsequent cycles the MDSCs become resistant showing increases in number of MDSCs². Research showed granulocytic-MDSCs (G-MDSCs) and neutrophils contribute to resistance of sunitinib treatment³. This study assessed maturation status (CD16⁺/⁻) of neutrophils and G-MDSCs and the impact on CD16⁺/⁻G-MDSCs populations after treatment with sunitinib. The genetic expression of CD16⁺/⁻G-MDSCs and proteomic expression of neutrophils were done to understand their role in RCC tumor survival. Results showed the CD16⁺/⁻G-MDSCs were reduced and CD16⁺G-MDSCs illustrated up-regulation of immunosuppressive genes. The G-MDSCs were characterized as predominately immature, while neutrophils predominately mature. The RCC neutrophils

had pro-angiogenic and immunosuppressive genes; therefore neutrophils may promote RCC tumor progression and metastasis..

Jacqueline O'Dell

2:00 p.m.

Severance 009

History and English Double Major

Advisor: Hayden Schilling and Bryan Alkemeyer

Lady Rochford: Always Remembered as a True Courtier of Henry VIII

Lady Rochford was a lady-in-waiting to four of Henry VIII's six wives. She married Anne Boleyn's brother, George, and gave evidence against them unknowingly. With her husband executed, Lady Rochford had to make her own way in a world ruled by men. Modern works and histories perceive her as a wicked or sinister woman. I, however, uncovered the truth of history and gave her a new light in the first historical fiction written solely on Lady Rochford.

Ethan O'Neal

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: John Neuhoff

Biological Sex Differences in Attraction and Proof of Worth

The current study seeks to examine a potential biological sex difference in attraction behavior based on the relationship history of a potential mate. The study hypothesizes that: (1) Females perceive greater spousal, provisional, and parental quality from a male that has historically had a long-term relationship when compared to a male with a history of only short-term relationships and (2), that males show greater willingness to date those females with a history of short-term relationships over those with a history of a long-term relationship. The study found that people exposed to a long-term relationship history exhibited a greater willingness to date, while those exposed to short-term relationships perceived greater spousal, provisional, and parental quality.

Colleen O'Neil

9:00 - 11:00 a.m.

CoRE in Andrews Library

English Major

Advisor: Benoit Denizet-Lewis

Switchbacks: An Outdoor Magazine for Ohio

I'm disappointed by Ohio's outdoor magazines—its only publications are essentially long, boring tourism pamphlets packed with Amish furniture advertisements. So I decided to create Switchbacks, a fun, smart outdoor recreation magazine for Ohio. For inspiration, I reviewed dozens of outdoor magazines such as Rock & Ice, Outside, and Dirt Rag. Then I traveled, interviewed people, wrote articles, and designed the entire magazine by myself. After the physical copy was ready to print, I set up a supplemental website where I posted my finished material. Switchbacks turned out well. It's a sleek, professional publication with interesting stories and good writing. I think I've done justice to the state of Ohio.

Nathaniel Partee

9:00 - 11:00 a.m.

Freedlander Lobby

Psychology Major

Advisor: Amber Garcia

Group Interactions of Ostracized People

The present study examined the relationship between an ostracized individual and the group. The participants included 27 men and 30 women who played a game called Cyberball against computer-generated players who ostracized both the participant and computer-generated Player 3. The participant's passes of the ball to computer-generated Player 3 were then recorded. The results showed that while there was no significant difference between the experimental and control groups there was a negative correlation between how ostracized the participant felt and how often they passed the ball to computer-generated Player 3. This may be because they felt decreased control over their lives and showed more anti-social behaviors towards the group instead of pro-social behavior towards the ostracized Player 3.

Keely Pearce

10:00 a.m.

APEX in Gault Library

History Major

Advisor: Kabria Baumgartner

'It's a good day to be indigenous:' The Quest for American Indian Identity through Activism and Film

In thousands of films, filmmakers have defined the image of American Indians to the American public. Considering, then, the film *Dances with Wolves* and the indigenous films that followed, I ask: 'How and why did films featuring Native Americans shift from depictions of savagery to celebrations of humanity?' I argue that this occurred because of a move toward pan-Indian identity, rooted in the activism of the 1960s and 1970s, when Indians began the quest for their own cultural identity. I am defining Native American 'cultural identity' as a group [pan-Indian] identity focused on cultural objects and beliefs. The 1990s, which witnessed an incredible upsurge in films by and about Native Americans, reflect this Native American cultural identity, beginning with the 1990 film *Dances with Wolves*. Due to the film's success, American Indian filmmakers were able to create films about modern Native American life, emphasizing a common humanity, despite tribal differences.

Matthew Peppers

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Shelley Judge

Analysis of Ice Springs Volcanic Field Structures, Black Rock Desert, Utah

The Ice Springs Complex is an area of recent (>600 ya) volcanism within the Black Rock Desert west of Fillmore, Utah, that has been influenced by E-W crustal extension and subsequent vertical crustal thinning related to the formation of the Basin and Range Province. The area has been subjected to both the regional stress field of the Basin and Range as well as local stress field of the cone, and to the processes of inflation and deflation of the lava flows. These processes have created and impacted a number of features visible at the field site, and this study seeks to explain and interpret these

features. This study demonstrates that an analysis of structures found at Ice Springs provides valuable insight into the processes that affect the flows during and after emplacement, and would be enhanced by further data collection from the field and literature analysis on inflation.

Emily Perbix

1:00 - 3:00 p.m.

Kauke 238

Sociology Major

Advisor: Christa Craven

We All Need Somebody to Lean On: An Examination of Social Support Networks at the Center Communities of Brookline, Massachusetts

Researchers such as David Jacobson and Neal Krause illustrate that support that comes from interpersonal relationships positively impacts the health and wellness of older adults. At a time when the lifespan of individuals is ever-increasing, understanding social support networks is important to the livelihood of adults over the age of 65. This study analyzes social support networks of 19 residents living in an independent housing community in Brookline, Massachusetts and utilizes Goffman's theories of stigma and total institutions and Foucault's theory of discipline of the body. In-depth interviews reveal that support for older adults comes predominantly from friends, family, and formal and informal groups outside of the building and highlights how this support is related to time, locality, and connection. These results suggest that older adults may benefit from multi-generational or non-institutionalized housing that would allow for a more positive atmosphere in regard to interpersonal relationships within living facilities.

Stephen Perrott

9:00 - 11:00 a.m.

Kauke Second Floor Lobby

Political Science Major

Advisor: Angela Bos

May it Please the Environment?:

A Study of the Role Regional Location Plays in Influencing Federal Court Decisions on Fossil Fuel Cases

Within the theory of legal realism, United States judges are observed as agents that make decisions based on preference, belief, and institutional influences. As a result, studies of judicial behavior and strategy have been implemented, to determine the motives that lie behind decisions made by federal courts. This study provides an account of judicial attitudes that are specifically significant within the field of environmental law and politics. By accounting for the use of environmental values established by prominent scholars of environmental politics, this study answers the question 'Does regional location of federal circuit courts of appeal affects the way judges find in favor of or against the environment when the case involves fossil fuel obtainment or production?' After analyzing the regional differences in fossil fuel decisions, the study will examine particular cases in order to determine what environmental or anti-environmental attitudes motivated the court's decisions instead of relying on broad ideological values.

Annie Peterson

1:00 - 3:00 p.m.

Kauke 238

Sociology Major

Advisor: Anne Nurse

Encounters of Food in the American Prison System: From Green Bologna to Nutraloaf in the Prison Chow Hall

The intricacies of the American prison system are vast and often overlooked topics. Prisoners represent a considerable sector of the American population, and although they are serving time for their crimes, their prison experiences are worth looking at. For my senior independent research study I plan to study how food plays a role in the American prison experience. I plan to see how food affects the every day life of the prisoner, and some of the sociological implications that prisons have on inmates. I am drawing upon the previous works of social theorists Michel Foucault, Erving Goffman and Max Weber in order to further analyze and explain the role of food in the current American prison system. With an exclusively qualitative approach to this study, my results will reflect the many personal experiences of prison life, and hopefully lend a voice to the many incarcerated individuals of the United States.

Megan Piemonte

9:00 a.m.

Taylor 111

Art History and French Double Major

Advisor: Kara Morrow and Harry Gamble

From Renaissance Entertainment to Occult Divinatory Practice: An Iconographic Study of the Sexual Female Image in Tarot

In modern society, tarot cards are affiliated with esoteric practice, arcane wisdom, and occasionally, feminine spirituality. Since the deck's inception in Renaissance Italy as a parlor game, the tarot has existed as a representation of gender due to the ubiquitous female image in card visuals. Yet, what once served as an entertainment device and a means of sexual interaction in the Milanese court, transformed into a divination tool used in eighteenth-century occult practice. Though female personifications have remained a present and defining feature of the Major Arcana, subtle changes in tarot imagery and changing societal perceptions of gender renovated the deck's cultural significance and altered the connotations of its visual iconography. This study examines the identity and purpose of the tarot between two societies during which the cards were rampant in popular culture and examines how changes in social mentalities of gender informed the deck's contemporary sexual and esoteric identity.

Richard Tadd Pinkston

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History and Political Science Double Major

Advisor: Katherine Holt and Mark Weaver

Ethnoscaples and Nationalism in the Cherokee Nation's Constitutional Law, 1960-2013

My research attempts to understand the construction and evolution of contemporary national and ethnic identity by studying the Cherokee Nation of Oklahoma. This work discusses modern issues of identity through the context of the Cherokee Nation's constitutional law and the challenges to said law. I purpose that tensions and growth in Cherokee identity are embedded in the 1975 and 1999 Cherokee constitutions and the legal battles surrounding them. The theoretical aspect of my work draws from Anthropologist Arjun Appadurai and American Indian Nationalist Jace Weaver. These two theorists provide through provide a fitting theoretical framework for my analysis as Appadurai concerns himself with identity in modernity and Weaver is a Cherokee nationalist. While Appadurai and Weaver often disagree,

their theoretical tensions mirror the societal tensions in the Cherokee Nation. Finally, I will be reviewing the history of ethnic and racial tensions in the Cherokee Nation.

Paige Piper

1:00 - 3:00 p.m.

Severance Hall First Floor

Biochemistry & Molecular Biology Major

Advisor: Dean Fraga

Characterization of a Creatine Kinase Enzyme from Cryptosporidium muris

Recent genomic sequencing of *Cryptosporidium muris* revealed a phosphagen kinase (PK) homolog. *C. muris* is a protozoan parasite and the only *Cryptosporidium* species with a PK, suggesting the gene was acquired via horizontal gene transfer (HGT). Initial sequence alignments suggest that the gene is a creatine kinase enzyme, and the corresponding protein was overexpressed in *E. coli* and purified to fully characterize its activity. The preferred substrate specificity of the enzyme was tested using ³¹P-NMR with four guanidino substrates: creatine, arginine, glycoyamine, and taurocyamine in MgATP solutions. Creatine and glycoyamine were identified as the preferred substrates and kinetic constants were obtained using isothermal titration calorimetry (ITC). The kinetic values with the creatine substrate were calculated to be $K_m = 1.95$ mM, $V_{max} = 0.5$ uM/s, and $K_{cat} = 30$ s⁻¹. Kinetic constants with the glycoyamine substrate were $K_m = 6.57$ mM, $V_{max} = 0.5$ uM/s, and $K_{cat} = 0.5$ s⁻¹.

Gina Pirolozzi

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Joan Furey

I Just Want To Be Heard: An analysis of the concerns of parents who have children using high-tech augmentative and alternative communication devices

The purpose of this study was to investigate specific concerns of parents who have children using high-tech augmentative and alternative communication (AAC) devices. Specifically, I investigated parental concerns related to the AAC device, including training, resources of time and money, and integration of the device into the community and school setting. The results indicated a discrepancy between the quantitative and qualitative data collected. When asked to provide their opinions of parental concerns on Likert-type scales, parents indicated little concern. However, when given the chance to expand on their concerns, parents provided many examples that conflicted with what the quantitative data revealed. Furthermore, parents are most concerned with the integration of their child's device into the community and the weight and portability of the device. Additional training is needed so that teachers are better able to educate children who use AAC devices.

Erin Plews-Ogan

11:20 a.m.

CoRE Cube in Andrews Library

Anthropology Major

Advisor: Matthew Mariola

'Eat Until You're Full':

The pursuit of autonomy and health through the adoption of organic agriculture in Mae Ta, Thailand

This research explores the role that farmers' concerns about health and autonomy have played in the creation of an organic cooperative in Mae Ta, Thailand. Against the tide of urban migration and contract farming, farmers in Mae Ta chose a unique alternative: sufficiency-based organic polyculture. Through six weeks of participant observation and 19 interviews with organic and conventional farmers and community members, I found that health concerns were among the most significant proximate motivations for transitioning to organic, but these concerns were not isolated to physiological effects of chemical application: they were tied to issues of food sovereignty and stress due to constrained autonomy. This research draws on Paul Farmer's theory of structural violence and health, as well as current debates revisiting the peasantry. Mae Ta farmers' decisions to convert to organic can be seen as a response to the impact of economic restructuring on the health of rural communities.

Elizabeth Plumley

1:00 - 3:00 p.m.

Freedlander Lobby

Neuroscience Major

Advisor: Amber Garcia

The Influence of Intergroup Contact on Implicit Attitudes: A study of The Other-Race Effect

In social interactions we encounter race plays a role whether we consciously consider it or not. Subconsciously, the way we process and respond to race varies depending on biological predisposition and socialization that occurs over the course of our lifetimes. The primary purpose of my study was to explore whether intergroup contact had an effect on the other-race effect using African American participants, and to reveal the presence of the other-race effect. Participants completed a survey that asked intergroup contact questions and an implicit association test (IAT). The other-race effect suggests people are better able to react and respond to faces of the same-race than faces of an other-race. I anticipated the other-race effect would be apparent from IAT and reaction time responses to both African American faces and European American faces. This study also sought to explore the interaction between intergroup contact and facial stimuli response in terms of reaction times.

Duncan Price

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Karen Lewis

Liquid Body Armor and Shear Thickening Fluids

This experiment investigated the practicality of using shear thickening fluids as a supplement to traditional body armor. Using a rotary puncture device, we tested the resistive qualities of various fabrics before and after being impregnated with the properties of a shear thickening fluid. Both nylon and Kevlar were treated using a nanoparticle suspension consisting of silica nanoparticles and polyethylene glycol. The fabrics were struck with rotational velocities between 1.0 and 7.0 m/s, and experienced punctures between 0 and 10 cm. After analyzing the data, we concluded that although treatment does appear to increase the strength of the fabric, it is not certain if said strengthening is due to the shear thickening properties of the nanoparticle suspension or some other factor.

Kit Price

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Mark Wilson

A description of cryptoskeletozoan communities and growth analyses of cryptic Cuffeyella arachnoidea and Cornulites from the Upper Ordovician (Richmondian) of Ohio and Indiana

Cryptoskeletozoan communities are abundant on internal molds of mollusk shells from the Upper Ordovician (Richmondian) of Ohio and Indiana, but have not yet been thoroughly described. These cryptic, encrusting communities inhabited gastropods, monoplacophorans, nautiloids, and bivalves, and were comprised of sheet-like bryozoans, runner-type bryozoans (*Cuffeyella arachnoidea*, *Corynotrypa delicatula*, and *Corynotrypa inflata*), cornulitids (*Cornulites*), microconchids, and craniid brachiopods (*Petrocrania scabiosa* and *Philhedra* sp.). All the cryptoskeletozoans were abundant with the exceptions of the craniid brachiopods. Microconchids were more abundant than expected, and a new morphology of microconchids from the Upper Ordovician of North American was found. Statistical analysis was used to show that the growth directions of *Cuffeyella arachnoidea* and *Cornulites* were related to the location of the host's aperture. *Cornulites* supported my hypothesis that the cryptoskeletozoans grew preferentially towards the host's aperture whereas *Cuffeyella* did not.

Amanda Priest

1:15 p.m.

Lean Lecture Room

English Major

Advisor: Matthew Hooley

Paralysis: An Urban Liberation

My Independent Study sought to illuminate the complex relationship between metropolitan areas and their inhabitants. I decided the best genre for my creative explication was theater. Each creative motif placed throughout was carefully sorted based on research. My play was created to exist in both physical and visual realms. It seeks to dissect the multifaceted correlation between urbanism and paralysis.

Jessica Pringle

1:00 - 3:00 p.m.

Taylor Second Floor

Biology Major

Advisor: Laura Sirot and Richard Lehtinen

The Effect of Parental Care on Embryonic Survival in the Tobago Glass Frog, Hyalinobatrachium orientale tobagense

To determine the effect of parental care on embryonic survivorship in *Hyalinobatrachium orientale tobagense*, a parental removal experiment was conducted. Attended and unattended clutches were monitored for six days along two streams on the island of Tobago and embryonic survivorship was tracked. It was hypothesized that parental care has a significant positive effect on the survivorship of the Tobago glass frog embryos; that parents spend more time brooding younger clutches; and that egg attendance has multiple functions including predator defense, rehydration, prevention of developmental abnormalities, and/or antimicrobial mechanisms. In addition to the removal experiment, descriptive data were collected to examine male behavior as well as patterns of clutch distribution. My results suggest that nocturnal

paternal care is common, it enhances the survivorship of the embryos, it confers benefits to the offspring and caregiver, but the males do not need to be actively brooding to improve the survival of the offspring.

Shelby Pykare

10:30 a.m.

APEX in Gault Library

Anthropology Major

Advisor: David McConnell

'Riding the Red Wave': Constructing Pan-Oceanic Identity at The Oceania Center for Arts, Culture and Pacific Studies

This study examines pan-Oceanic identity as envisioned by Epele Hau'ofa at The Oceania Center of Arts, Culture and Pacific Studies and the changes it has undergone over time. Epele Hau'ofa, a Tongan anthropologist, recognized that within the Pacific Ocean there exists a diverse collection of island cultures with their own unique traditions, art forms, and dances. Though separated physically by the vast ocean, the islands are dramatically shaped by their shared experiences with the ocean, thus connecting them. Hau'ofa founded The Oceania Center to be a place where pan-Oceanic identity could grow through the creation of contemporary works of art that were inspired by the pre-colonial pasts of Pacific Islanders. OACAPS has been based in Suva, Fiji since its founding in February of 1997 on the main campus of The University of the South Pacific. It has grown since its beginning to include visual artists, dancers, musicians and academics.

Nikolai Radzinski

11:40 a.m.

Severance 009

1:00 - 3:00 p.m.

Severance Hall First Floor

Biochemistry & Molecular Biology Major

Advisor: James West

Protein Cross-Linking as a Mechanism of Cytotoxicity for Bifunctional Electrophiles

A variety of industrial chemicals, plant and microbial secondary metabolites, and oxidative stress byproducts contain electrophilic centers that are able to react with nucleophilic sites in proteins. These reactions yield potential cytotoxic consequences. The cytotoxicity of a panel of eight structurally diverse bifunctional electrophiles were compared to their monofunctional analogs in order to quantify the enhancement in toxicity afforded by molecules with two electrophilic centers. Results of liquid toxicity assays by growth inhibition in yeast cells show a marked increase in toxicity of bifunctional electrophiles over monofunctional analogs. The bifunctional molecules are up to 500 times more toxic than respective monofunctional analogs. Each of the bifunctional electrophiles is capable of cross-linking recombinant cytosolic thioredoxin (Trx2) from baker's yeast in vitro, forming protein aggregates. Taken together, our results show that bifunctional protein cross-linkers exhibit considerably greater toxicity than simple protein alkylating agents.

Monica Ramstad

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: Stephanie Strand

Interactions Between the Soybean Aphid (Aphis glycines), Host Plant Resistance (Hpr), And Insecticide (Warrior II)

The soybean aphid (*Aphis glycines*) is an invasive species, which causes damage to the soybean plant, and leads to significant yield loss. To increase overall yield, aphid management programs involve the use of biological control, host plant resistance (HPR), and insecticides. HPR can be overcome by certain aphid biotypes, and increased insecticide use has also raised the possibility of developing insecticide resistance in soybean aphids. With the possibility of increased resistance to HPR and insecticides, and the involvement of similar detoxification pathways, resistance to one may lead to resistance in the other (i.e. cross resistance). This interaction was measured by overall aphid survivability and gene expression after aphids fed on soybean varieties and sprayed with insecticidal treatments. An increased resistance as measured by aphid survivability and gene expression was not observed for this interaction. However, insecticide treatment, regardless of plant and aphid type, best explains differences in aphid survivability.

Tyler Rhoades

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Karen Lewis

Differential Photometry of Transiting Exoplanets

A trip to Flagstaff, Arizona was taken to use Lowell observatory to observe the transit of four extrasolar planets: WASP-12 b, HAT-P-9 b, WASP-50 b, and XO-2 b. IRAF was used to perform photometry on the images taken of the exoplanets during their transits. The data output from IRAF was then analyzed in Igor Pro where the magnitudes from the transiting exoplanet were subtracted from the average of two reference stars to remove any fluctuations in the sky and equipment. This yielded a light curve showing the change in magnitude due to the transiting exoplanet. A Mathematica notebook was created to fit a piecewise function to the data based on six fit parameters. The best representation of these parameters was found by minimizing the root mean square difference from the model and data. For all four objects, the measured transit duration and depth agreed closely with results published in literature.

Abby Rider

9:00 - 11:00 a.m.

CoRE in Andrews Library

History Major

Advisor: Kabria Baumgartner

Broke City, Broke Schools: Desegregation of Public Schools and the Economic Decline of Akron, Ohio

1976 was a watershed year for Akron. Thousands of rubber workers were on strike. The Board of Education, facing a declining population and withering corporate tax base, moved to simultaneously shut down schools and desegregate the district. The Rubber Capital of the World was on the brink of a transformation into a hollow shell of its former status as an industrial powerhouse. The focus of this thesis is on the interaction between the declining economy and systemic school segregation in the post-Brown era, from 1954 to 1980, in Akron, Ohio. The bleak economy exacerbated white citizens' anxieties about the future and black citizen's dissatisfaction with their continued second-class treatment when it came to desegregation. The U.S. Federal District Court case against the School Board, *Bell v. Board of Education*, highlights Akron's unique response to the economic and political pressures of the declining urban center.

Elizabeth Riggsbee

1:00 - 3:00 p.m.

Wishard First Floor

Spanish Major

Advisor: Cynthia Palmer

El exilio y la identidad en cuatro novelas de Julia Álvarez y Cristina García
Exile and Identity in Four Novels by Julia Alvarez and Cristina Garcia

I focused on the condition of living in exile in the novels *How the Garcia Girls Lost Their Accents* and *Yo!* by Julia Alvarez and *Dreaming in Cuban* and *The Aguero Sisters* by Cristina Garcia. I studied how living in exile influenced the formation of identity, and focused on family relationships, language, and memory retention and creation.

Margaret Roberts

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Studio Art Major

Advisor: Marina Mangubi

The History of the Americanization of Sushi and its Application as an Art Form

Legend tells us that making sushi, common in the West, first became known in an Edo gambling house in Japan sometime during the eighteenth century, when a gambler desperate to keep his hands on the dice at a craps table demanded that the cook concoct for him a snack that he could munch on with one hand. Following this demand, the cook went into the kitchen and devised the first sushi roll. The inventive cook did this by grabbing tuna scraps and some rice and wrapping the tuna/rice combination with a piece of nori seaweed in the shape of a cigar, thus creating sushi. Being mentioned in Japanese literature for centuries, sushi became a savory dish that displays an array of delicious flavors and traditions. Despite the legend, the origins of sushi are subject to debate; some believe that certain dishes originated in Japan during the ninth century, while others believe it actually began in China during the seventh century. Notwithstanding the time period, sushi has become known as 'a food that nourishes the body, enriches the brain, and is a delight to the human eye.'

Evan Robinson

1:00 - 3:00 p.m.

Severance Hall First Floor

Chemistry Major

Advisor: Sarah Sobeck

A Spectroscopic Study of Excited State Intramolecular Charge Transfer of Newly Synthesized Ethyl 4-(Dimethylamino) benzoate Derivatives

New PABA derivatives were synthesized and characterized to gain an understanding of the impact of the electron acceptor group on the photochemical properties of the system. The intramolecular charge transfer (ICT) of a series of PABA derivatives containing varying functional groups was studied spectroscopically and computationally in multiple solvents. Understanding the excited state charge transfer of these molecules can help synthesize PABA derivatives for specific applications. Our newly synthesized derivatives feature either an ester and thioester electron acceptor group with a multichlorinated ethyl group. The Fischer esterification reaction and subsequent thionation reaction using phosphorus pentasulfide are used to convert a PABA precursor (4-dimethylamino benzoic acid) to the desired derivatives. The presence of distinctive double emission peaks is characteristic of ICT reactions. Computational studies are used to assess

the charge distribution of the HOMO and LUMO's involved in the spectral transitions to analyze the electronic transitions relevant to ICT reactions.

Michael-Erik Ronlund

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Cody Leary

Sorting Spatial Wavefunctions of Photons By Parity

An apparatus to sort the Hermite-Gauss spatial wavefunction modes produced when a laser passes through an optical fiber was connected from existing sorters, as well as augmented with new components. This apparatus involved a Sagnac interferometer which acted as a two-dimensional parity sorter combined with a Mach-Zender interferometer which acted as a one-dimensional parity sorter. In combination, the Sagnac first sorted modes with even and odd two-dimensional parity, and the odd two-dimensional modes were then sorted by one-dimensional parity in the Mach-Zender. The end result was to separate all modes produced by a three mode fiber, allowing for study of the fiber's effects on a laser beam passing through it, as well as other possibilities for the study of photons.

Hannah Rothman

1:15 p.m.

Taylor 110

English Major

Advisor: Katharine Beutner

Give Me a Minute to Figure This Out: A Memoir of Learning, LARPing, and Living a Young Life with Aspergers

Hi, my name is Hannah: I'm a native New Yorker, 5'7", a cat person, and a nerd. I spent twelve years going to the same school, went to four different summer camps in five years, and have friends I've known since we were six years old. Also I happen to have Asperger's Syndrome, a neurological disorder on the autism spectrum. It doesn't completely define me or my life, but it still has an effect. A memoir isn't the story of your life, it's a story about parts of it. These are some of my parts.

Rutendo Ruzvidzo

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics and Economiccs Double Major

Advisor: John Ramsay and James Warner

The gift that keeps on taking: modelling the impact of a natural resource shock on an economy

Natural resource abundance can have a negative impact on the growth of an economy. An increase in natural resources leads to a movement of labor from the other sectors of the economy to the natural resource sector. However, once the increase subsides, the labor cannot easily move from the resource sector. The cost of training and time make the movement back to the other sectors harder for the workers in the resource sector. This paper contributes to the literature by developing an economic model that explores the effects of an increase in the natural resource sector output on the overall economy. Labor is divided into skilled and unskilled labor. The model predicts that overall output suffers from a

positive shock in the resource sector. Empirical results show that natural resource abundance and shocks have had a negative impact on the growth of Nigeria.

Stephen Ryan

1:00 - 3:00 p.m.

Freedlander Lobby

Neuroscience Major

Advisor: Dean Fraga

Identification and Functional Analysis of Voltage Dependent Calcium Channels in Paramecium tetraurelia

The action potential of Paramecium is calcium dependent and is elicited by the flow of calcium through voltage dependent calcium channels. In addition to causing the action potential in Paramecium, it is also responsible for such processes as exocytosis and the stereotyped backward swimming behavior. In this paper 12 putative calcium channel genes were from the Paramecium genome database. In addition the bioinformatic analysis of two of the putative genes showed possible sodium channel activity, which could have implications of the evolutionary story of sodium channel. The putative genes were analyzed through a variety of bioinformatic measures including phylogenetic analysis, BLAST analysis of conserved domains and GO term identification. In addition to the bioinformatic analysis, two of the putative genes were functionally tested using RNA mediated interference (RNAi). The results show that RNAi of a putative gene resulted in decreased backward swimming behavior.

Alea Safier

9:00 - 11:00 a.m.

Gault Library for Independent Study

English Major

Advisor: Debra Shostak

Searching for Alice: An Examination of Identity Through Dreams, Gender, Class, and Language in Lewis Carroll's Alice in Wonderland

This project examined Lewis Carroll's story Alice in Wonderland (1865) through psychoanalytic, Marxist, and feminist theoretical approaches, looking at Alice's shifting identity through her experiences in Wonderland. Wonderland is Alice's dream, so the story is driven by her self-discovery and search for her identity within her mind; it is a bildungsroman, a story of a growing up, and it questions the way people perceive and learn to live in their environments.

Kellen Safreed

10:00 a.m.

Taylor 111

Comparative Literature Major

Advisor: Carolyn Durham

Stranger than Fiction: The Realism of the Unreal in Balzac's La Peau de chagrin and Dostoevsky's Dvoynik

My I.S. explores the use of the 'realist' mode of writing in two mid-nineteenth century novels. Notably, these novels feature unrealistic or fantastic elements but this does not exclude them from being realist works because realism as a mode of writing is determined not by the content of the narrative but rather by the way in which it is presented; that is, the author describes a complex world with complex, motivated characters. Realism is not a depiction of 'reality' so much as an

attempt to capture the way that humans interact with reality. Balzac and Dostoevsky are important realists whose later work is very famous but I have chosen to analyze early, lesser-studied novels, *La Peau de chagrin* and *Dvoynik*, respectively, so as to see the roots of the authors' style.

Syne Salem

1:00 - 3:00 p.m.

Taylor First Floor

Physics and Philosophy Double Major

Advisor: John Lindner and Elizabeth Schiltz

Spacetime: Engineering and Metaphysics

The spacetime metric of general relativity is perturbed with unit-step perturbations in an attempt to better understand the relationship between the metric, the geodesics, and the SEM-tensor. The geodesics that result from each step-type are studied, catalogued, and reduced to useful heuristics for later engineering of exotic spacetimes. Then, major theories in the metaphysics of time are evaluated against relativity theory. I find that presentism is incompatible with relativity theory, but can be formulated compatibly with some proposed theories of quantum gravity. Eternalism is specially compatible with general relativity, but would need to be reformulated to fit no-time theories of quantum gravity.

Mary Ellen (Molly) Scherer

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Donald Goldberg

An Investigation of the Potential Relationship Between Hearing Loss and Alzheimer's Disease

Currently Alzheimer's disease (AD) is the 6th leading cause of death in the U.S., a statistic anticipated to increase as the elderly population continues to rise. Therefore, finding preventative measures or a cure should be a research priority. Currently, studies suggest a potential relationship between hearing loss and dementia/AD (Lin et al., 2011). For this reason, this study looked at the clinical measures licensed audiologists were routinely using, which may be reflective on their knowledge regarding this topic. Hence, the purpose of this study was to examine the degree and type of knowledge licensed audiologists in the states of Ohio and Florida have regarding the potential relationship between hearing loss and AD. In order to investigate this relationship, an electronic survey was distributed to licensed audiologists in these two states. A total of 210 responses were received and analyzed. The completed Independent Study reflects results, discussion, and future research recommendations.

Kate Schiller

10:30 a.m.

Kauke 038

Philosophy and Psychology Double Major

Advisor: Lee McBride and Gary Gillund

Forgiveness and Resentment

Combined study in philosophy and psychology examined philosophical conceptions of forgiveness and resentment as emotions with moral dimensions. The philosophical side of the project examined contemporary views of forgiveness and

resentment in ethics, used a cognitive theory of emotions to define forgiveness and resentment as the same emotion expressed along a spectrum, and ultimately argued for two types of Kantian moral duties in determining agents' responsibilities for forgiving and resenting. An empirical psychology study was undertaken that examined the effects of friendship and feedback messages on forgiving behavior, resentment, and emotions during a Prisoner's Dilemma Task. Contemporary literature in psychology was reviewed to provide insight into when, how, and why people forgive and resent, and what it means to do so.

Matthew Schmitthener	9:00 - 11:00 a.m.	Taylor Third Floor
	1:00 - 3:00 p.m.	Taylor First Floor

Mathematics and Physics Double Major

Advisor: R. Drew Pasteur and Shila Garg

A Theoretical and Experimental Pattern Analysis of Electrohydrodynamic Convection in a Liquid Crystal System

Patterns formed by the electrohydrodynamic convection (EHC) of a liquid crystal system were analyzed experimentally and through a computational model. For the experimental liquid crystal system, a setup consisting of a circuit to supply and measure voltage, a microscope mounted with a camera, a temperature controlled heating stage and a computer to collect data was assembled. A simulation of the Generalized Swift-Hohenberg equation was created using a finite difference method to solve the partial derivatives. The liquid crystal experiment found the transition parameters between non-EHC and EHC behavior for two novel shaped liquid crystal materials, RB1115 and RB1189, synthesized at Kent State University. The transition between dynamic scatter modes was also examined using discrete Fourier transforms. The Generalized Swift-Hohenberg equation was solved in two dimensions, and the resulting pattern was interpolated. These two different dynamical systems produced images with comparable patterns, validating the simulation to a degree.

Kimberly Schmitz	9:00 - 11:00 a.m.	Wishard First Floor
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Communication Sciences & Disorders Major

Advisor: Joan Furey

Influences of Age and Education Level on Non-literal Language Usage in Adults

The purpose of this study was to determine the frequency and types of non-literal language usage in adults. In particular, the researcher determined whether non-literal language usage changes as a result of age and or education level. Age was chosen as a variable because cognitive decline, as a result of old age, diminishes older adults' abilities to interpret certain types of non-literal language. Education was chosen as a variable because no research has examined the effect of education level on non-literal language production. Each participant told three stories based on images taken from the Thematic Apperception Test. Then, those stories were coded for non-literal language and subsequently analyzed. Priming and explicit instruction both had a significant effect on non-literal language usage. However, a significant interaction was present between amount of figurative language usage and age. Neither age nor education level had a significant effect on ambiguous language usage.

English Major

Advisor: Daniel Bourne

The Little Gods

This collection poetry and prose poetry examines notions of transformations both within the 'real world' and in psychological landscapes. The pieces create dissonances between world and the character, and vice versa, in surreal and absurd ways.

Psychology Major

Advisor: John Jewell

The Real Face of Mental Illness: The Effects of Messaging on Attitudes Towards People with Severe Mental Illness

This study examined how the quality of a message influences the attitudes towards someone with severe mental illness (schizophrenia) and the likelihood of helping behavior. A narrative from a patient with schizophrenia was presented in four different ways to see if the quality of the message had an influence on attitude or on the amount of hypothetical money participants donated to assist people with schizophrenia. The quality of the messaging was not supported as a factor leading to a higher likelihood of helping behavior or more positive attitude towards the patient with schizophrenia. An important finding was a negative attitude towards the patient with schizophrenia, suggesting that stigma towards mental illness is pervasive and not easily changed by short exposure to different forms of media messaging. Despite this negative attitude, participants still donated money, suggesting that future research should focus on additional factors relating to helping behavior towards people with schizophrenia.

Chemistry Major

Advisor: Paul Edmiston

Controlled Release of Fragrance Compounds by Porous Organosilica Materials

Fragrance formulations represent a \$1.8 billion dollar chemical industry. One of the key aspects is controlled delivery of fragrances, but the common problem with most commercial perfumes is the length of time they last on skin. Most perfumes only last (at maximum) 3-4 hours. The purpose of this study was to modulate the release rate of fragrance compounds with a controlled release mechanism using porous organosilica materials. The hypothesis was that a nanoporous material will lead to more uniform vaporization rates of fragrance compounds. Three different substrates were dosed with fragrance compounds; rose extract (main components being pinene and camphene), menthol, hexanol, and dodecane. Direct headspace gas chromatography mass spectroscopy (selected ion monitoring) was used to analyze the concentration of each fragrance compound over a period of time. The data collected was used to measure the kinetics of release.

Hilary Sehring

10:30 a.m.

Kauke 305

English Major

Advisor: Nancy Grace

The Extremes of Our Own Nature: A Feminist Psychoanalytic Interpretation of Three Short Stories by Flannery O'Connor

Throughout my thesis, I incorporate feminist thought alongside Freudian theory in order to examine O'Connor's works with a theoretical approach that does not depend upon patriarchal values. I examine the motives behind O'Connor's characters' actions and consider why they perform and think the way that they do. I study the crucial aspect of family dynamics, as well, in order to further comprehend the possible impacts of the characters' home environments.

Ryan Shafranek

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Judith Amburgey-Peters

Improved Synthesis of the Proposed Phosphatidylserine Analog Cyclohexylphosphoserine via the H-Phosphonate Approach

Phosphatidylserine (PS), a glycerophospholipid, specifically binds Ca²⁺-protein complexes involved in apoptosis and blood coagulation. We report the synthesis of a potential PS analog containing a phosphoserine “head group” bonded to a cyclohexyl ring that may serve as a model for PS-Ca²⁺-protein binding. The 4-step synthesis utilized H-Phosphonate chemistry with an acyl chloride activator followed by oxidation and deprotection. ³¹P and ¹H NMR confirm synthesis of the desired H-Phosphonate monoester (CBZ-L-Ser-PH) in Step 1 (≥ 96%) as well as the desired H-Phosphonate diester (CBZ-L-Ser-PH-cyc) in Step 2 (≥ 88%). The H-Phosphonate diester was successfully purified, but challenges remain in improving the clarity of purification protocols. Initial trials suggest that oxidation of the diester using I₂ and H₂O is possible. However, no pure sample of CBZ-L-Ser-PH-cyc was ever oxidized. Oxidation and deprotection of pure CBZ-L-Ser-PH-cyc is predicted to be quantitative, making synthesis of cyclohexylphosphoserine feasible.

Charlotte Shapiro

9:30 a.m.

APEX in Gault Library

Women's, Gender, & Sexuality Studies Major

Advisor: Stacia Kock

Women Bleed. Period. An exploration of feminine hygiene companies' print and commercial advertisements

The focus of this project is to explore the ways feminine hygiene products are advertised in both printed and televised form. This project explores the ways feminine hygiene companies portray women while menstruating and uses content analysis as the method of choice. Through a detailed use of feminist theories such as Butler, Mulvey, and Beauvoir, this project addresses both the ways in which bodies are represented as well as myths and taboos of menstruation in advertisements. A discussion of some feminist methods and social action to make these ads less focused on the embarrassment and shame of menstruation concludes the project.

Jane Siegel

1:15 p.m.

Taylor 111

English Major

Advisor: Thomas Prendergast

This is How Girls Walk

This Is How Girls Walk is a queer memoir that focuses on gender and sexuality and the way identity is formed out of social and personal perceptions. The text explores the intricacies of emotions and the power of emulation, mirroring, twins, passion, lust, in addition to things such as the physical space of bathrooms. Looking at adolescent relationships, this memoir serves as a coming of age story that details the boundaries and ambiguity that come along with variant sexual and gender identities.

Marianne Sierocinski

1:00 - 3:00 p.m.

Kauke 238

Urban Studies Major

Advisor: Eric Moskowitz

Educational Change in Miami-Dade County: A Study of Civic Capacity

This study applies the concept of civic capacity – defined as the ability of diverse stakeholders to engage in problem-solving action – to evaluate recent educational reform efforts in Miami-Dade County, Florida. The researcher presents a comprehensive model of civic capacity development that details how a precipitating event, coupled with broad-based leadership, results in cross-sector mobilization and the development of agenda consensus. This process, influenced by a given city's urban context and civic infrastructure, leads to the development of civic capacity. Ultimately, however, the researcher finds little support for the hypothesis that this cultivation of civic capacity results in the enactment of systemic reform. Instead, the strong leadership of superintendents and the impact of state and federal education legislation have played a key role in shaping outcomes, with a number of large-scale reform initiatives instituted in Miami-Dade County Public Schools without the development of civic capacity.

Whitney Sims

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Meagen Pollock

Geochemical and geospatial analysis:

Mapping of Miter's lava flows in Ice Springs Volcanic Field, Black Rock Desert, Utah

The Ice Springs Volcanic Field in the Black Rock Desert of Utah last erupted approximately 660 +/- 170 years ago (Valastro, 1972). Within the area are four cinder cones: Crescent, Miter, Pocket, and Terrace. Lava flow boundaries from the cinder cones are unclear and current maps do not distinguish between individual flows. This study is focused on the distribution of the Miter flows to determine the sequence of emplacement. An individual flow boundary was determined based on characteristics of vegetative cover, morphology, vesicularity, and chemistry of the lava flows. Samples were analyzed for bulk rock major elements by x-ray fluorescence spectrometry. A pattern relating age and silica content was found to correlate similar Miter flows to different parts of the field. Findings show the Ice Springs' emplacement history

generally agrees with previous workers with a few modifications made to identify individual flows and boundaries within the larger Miter flow field.

Tyler Sinclair

9:00 a.m.

Kauke 038

Communication Studies Major

Advisor: Ahmet Atay

Understanding Division-I Ethical Sports Scandals, Their Public Relations' Approaches and Effects

The purpose of this specific study was to examine how an ethical violation that occurred in a Division-I collegiate institution, and its consequent image restoration tactic, affected the public perception of that institution in which it occurred. This study utilized the qualitative methodology of focus groups. Each group was presented with an ethical violation and then was asked to discuss their opinions on the presented scandal. That was followed by a presentation of an image restoration technique and another discussion of their thoughts. These results showed that an ethical sports scandal negatively affects public perception of the program and university in which it occurs. Participants attached several negative emotions, attitudes, and opinions when asked a variety of questions. The participants also felt that the image restoration strategy used in this study was primarily ineffective in restoring the overall image of the program and university.

Cory Smith

9:00 - 11:00 a.m.

Kauke 238

Anthropology Major

Advisor: Olivia Navarro-Farr

Benvenuto a Roma! An Investigation of the Impact of Tourism on Roman People and Culture

Historians have studied the vast history of Rome and anthropologists have begun to study the impacts of tourism on particular societies; however, few scholars have investigated the impacts of tourism on Roman society. This lack of research is surprising since Romans are one of the oldest civilizations in the world, and today, tourism is one of Rome's top industries. Over 700 years, tourism in Rome has rapidly developed due to various attractions; therefore, the purpose of my research is to investigate how tourism impacts the lives of Romans today. I interview 13 individuals who are familiar with Rome and its tourism. Although believed to be mostly positive, the participants do voice concerns relating to Rome's future authenticity, commodification of culture, and the community division mass tourism is making. This study provides valuable information and suggestions that needs to be taken into consideration for the future well-being of the Eternal City.

Karl Smith

9:00 - 11:00 a.m.

CoRE in Andrews Library

1:00 - 3:00 p.m.

Taylor First Floor

Philosophy and Physics Double Major

Advisor: Elizabeth Schiltz and Cody Leary

would be considered lifeless and unsuccessful. Ultimately, takso is a multifaceted, metaphysical term that describes a spiritual power in the form of a blessing that enhances a performer during performance.

Sarah Smith-Polderman

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: James Hartman

Let's Get In The Mood: An Exploration and Implementation of Data Mining Techniques to Predict Mood Based on Musical Properties of Songs

This thesis explores the possibility of predicting the mood a song will evoke in a person based on certain musical properties that the song exhibits. First, I introduce the topic of data mining and establish its significant relevance in this day and age. Next, I explore the several tasks that data mining can accomplish, and I identify classification and clustering as the two most relevant tasks for mood prediction based on musical properties of songs. Chapter 3 introduces in detail two specific classification techniques: Naive Bayes Classification and k-Nearest Neighbor Classification. Similarly, Chapter 4 introduces two specific clustering techniques: k-Means Clustering and k-Modes Clustering. Next, Chapter 5 implements these previously discussed classification and clustering techniques on a data set involving musical property combinations and mood, and makes conclusions about which musical property combinations will most likely evoke a happy, sad, calm, or agitated mood.

Kyle Smucker

2:00 p.m.

Lean Lecture Room

Sociology Major

Advisor: Thomas Tierney

Shifting Solidarities on the Global Plane: an Analysis of Cultural Dialogues in Nepal's Emerging Middle Class, from Heavy Metal Music to International Education

The theoretical aim of the following study is to compare the functions of social ethics in Durkhemian, post-modern and communitarian dialogical models while constructing a unique theoretical model of 'shifting solidarities' influenced by these perspectives. This model is applied to contemporary cultural globalization theories of 'glocalization' and 'scapes'. Two comparative, largely qualitative case studies regarding populations of the emerging Nepalese middle-class are examined through my theoretical lens: 1) music teachers, concert organizers and musicians in Kathmandu's heavy metal music scene and 2) Nepalese graduate students enrolled in an American university. These case studies examine how members of the Nepalese middle-class combine international sources of social identity to construct ideas of locality and nationality through global dialogues with the fantastical 'Other'.

Benn Snyder

9:00 - 11:00 a.m.

Taylor Third Floor

9:00 - 11:00 a.m.

CoRE in Andrews Library

Computer Science Major

Advisor: Denise Byrnes

Computer Vision: Object Recognition and Human-Computer Interaction

This thesis focuses on computer vision and gesture-based human-computer interaction. In examining computer vision, the project covers existing computer vision systems, including OpenNI/NITE and libfreenect. It explores topics such as identifying humans and objects in scenes, recognizing gestures and context-specific movement, and more general scene analysis. The results of the computer vision work are applied to human-computer interaction. The project examines different types of user interfaces and the applicability of gesture-based interaction to those interfaces.

Madeleine Socolar

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Studio Art Major

Advisor: Marina Mangubi

Dream Worlds

My paintings are windows into my imagined worlds. They work to tear down the boundaries between reality and the world of our dreams. There is an emphasis on child-like opened minds and the idea of play. Many of the paintings are inspired from Exquisite Corpse sentences that my little cousins created. These are sentences in which a group of people follow a sentence structure and fill in words that match a designated part of speech, creating a grammatically correct sentence. Each individual is unaware of the words that the others wrote. The result is a series of words strung together that one might not expect to see in the same sentence. This mirrors the disconnected objects and happenings in our dreams. My paintings eventually broke away from these sentences so that I was relying only on my imagination for inspiration. Surrealist artists inspired both my painting style and subject matter.

Andrew Sopher

1:00 - 3:00 p.m.

Taylor First Floor

Physics Major

Advisor: Karen Lewis

Head for Safety: A quantitative analysis of headgear effectiveness in soccer

Soccer players of all ages put their body on the field for up to ninety minutes every game. Players run the risk of injury like any contact sport, but they also face damaging blows to their brains when heading soccer balls. In this experiment, a soccer ball was launched at various angles and speeds at a ballistic dummy with and without headgear to measure the effectiveness of the headgear in reducing the acceleration that the head experiences upon impact with a soccer ball. An accelerometer placed within the dummy's skull measured the motion of its head upon collision with the ball. The motion was measured as voltages in the x, y, and z directions. These voltages were combined and converted into accelerations in terms of g. Nine different configurations (three speeds and three angles) were tested and in all cases the acceleration was lower when the headgear was used.

Jennifer Springmier

9:00 - 11:00 a.m.

Wishard First Floor

Communication Sciences & Disorders Major

Advisor: Donald Goldberg

A Quantitative Analysis of the Diagnostic Procedures Audiologists Use When Determining Candidacy for Cochlear Implants in Children with Multiple Disabilities

Children who are deaf and have additional disabilities are a heterogeneous, or extremely diverse population, who display a wide range of strengths and abilities and respond inconsistently to audiologic assessment and intervention techniques. There is a growing need for audiologists to acquire knowledge to meet the challenges of assessing and managing hearing loss in this group of individuals. This study investigated the diagnostic procedures that audiologists use in order to determine candidacy for cochlear implants in children who are deaf and have one or more additional or multiple disabilities. Additionally, this investigation aimed to determine how audiologists measure the audiologic and speech perception outcomes of children with multiple disabilities following cochlear implantation. This study was conducted using survey methodology, surveying audiologists working as part of cochlear implant teams across the United States.

Nicholas St. Amour

2:15 p.m.

Lean Lecture Room

Political Science Major

Advisor: Matthew Krain

Amish War Criminals and Fascist Hippies: How Combatants' Methods of Motivations Affect the Amount and Intensity of their Nonmilitary Atrocities

The Independent Study seeks to understand how the methods in which combatants' are motivated and their relationships to elites affect those combatants' propensity to commit nonmilitary atrocities. Based on the literature or more specifically the gaps therein, I develop the argument that these motivations are a highly significant influence on actions. Using a least-similar systems comparative case study design I test my hypothesis that combatants' motivations influence their behavior. I analyze the combatants in both the Irish and Russian Civil Wars. I conclude that combatants' motivations and relationships with elites play a hitherto understated role in determining combatants' behavior. However it is worth noting that these are not the overwhelming decider of combatants' behavior that I predicted. Despite this my Independent Study adds a considerable and overlooked element to the discussion on the topic of large-scale nonmilitary atrocities.

Cody Staebler

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry and Biology Double Major

Advisor: Karl Feierabend and Stephanie Strand

Investigation of d6-Venlafaxine degradation in Wastewater Treatment Plant Sludge via Community Composition Identification and LC-MS/MS Monitoring

Pharmaceuticals and personal care products (PPCPs) have been widely identified to contaminant the environment via wastewater treatment plant (WWTP) effluent. PPCP contamination elicits a wide variety of adverse effects. WWTPs possess treatment options capable of removing contaminants, among them bioremediation through the use of sludge. Bioaugmentation, adding specific bacteria with certain degradative capabilities, to current sludge is possible with microbes able to degrade PPCPs. Venlafaxine (antidepressant trade name Effexor®) was used as a model PPCP for identifying microbes in municipal aerobic sewage sludge that facilitate its degradation. Primary degradation products were identified and were shown to undergo further degradation. Further investigation into degradation products are currently being identified through LC-MS/MS techniques. DNA isolation of sludge samples proved successful; however PCR

amplification is undergoing troubleshooting to enable DGGE analysis. Future work includes finishing the LC-MS/MS analysis and finishing DGGE analysis of the DNA. Further investigation will focus of degradation of N-desmethylvenlafaxine.

Timothy Stehulak

1:00 - 3:00 p.m.

Wishard First Floor

Economics Major

Advisor: James Burnell

A Study on the Impact of School Consolidation on Student Academic Achievement

Many school districts have recently made decisions to consolidate the number of schools within their respective district boundaries. This study examines the impact of school consolidation on student achievement. A sample of schools in the metropolitan Detroit area, an area in which consolidation has occurred, is examined. Three techniques are used to estimate the impacts at the individual school level, and the results are mixed but suggest that there is a negative impact or no impact at all from school consolidation.

Ruth Steinhour

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Jennifer Bowen and Robert Wooster

The Truth About Lie Symmetries: Solving Differential Equations With Symmetry Methods

Differential equations are vitally important in numerous scientific fields. Oftentimes, they are quite challenging to solve. This Independent Study examines one method for solving differential equations. Norwegian mathematician Sophus Lie developed this method, which uses groups of symmetries, called Lie groups. These symmetries map one solution curve to another. They can be used to determine a canonical coordinate system for a given differential equation. Writing the differential equation in terms of a different coordinate system can make the equation simpler to solve. This I.S. explores techniques for finding a canonical coordinate system and using it to solve a given differential equation. Several examples are presented.

Ashley Stopka

9:00 - 11:00 a.m.

Taylor Third Floor

2:30 p.m.

Kauke 305

Mathematics and Chinese Double Major

Advisor: Jim Hartman and Rujie Wang

A Study of Modern Geometries and Felix Klein's Erlanger Programm

The purpose of this paper is to research modern geometries and introduce Felix Klein's Erlanger Programm. It gives an overview of the Erlanger Programm approach to studying geometry using Euclidean geometry, then introduces some modern geometries. These geometries include: hyperbolic geometry, elliptic geometry and Mobius geometry.

Math Education in China: A Comparative Study

The purpose of this paper is to compare and contrast mathematics education in America and China. It has long been clear that American students have a much poorer understanding of mathematics than students from most other developed countries. My goal in this paper is to discuss how differences in language, teaching methods and culture can directly affect a students' mathematical education, and to give some insight into why mathematics education is lacking in America.

Claire Stragand

9:00 - 11:00 a.m.

Kauke 238

Anthropology and German Double Major

Advisor: P. Nick Kardulias and Mareike Herrmann

Determining the Environmental Consciousness of the Post-Wende Generation in Germany

An adoration and appreciation of nature has always outwardly existed within the German population. The role of environmentalism within German culture has been shaped and reshaped by changing society, national politics, economics, and pressing environmental issues of the time. Within the past few decades, Germany has set the tone for successful environmental politics, practices, and public policy. As individual citizens, Germans are known to be especially environmentally conscious, demonstrating a strong willingness to take on a personal role in conservation. The present study analyzes the level of environmental consciousness of the "Post-Wende" generation, or Germans born in the period surrounding German reunification. My guiding research question is "How do political, social, and cultural structures in Germany facilitate environmental consciousness among citizens?" Through an in-depth investigation, this research attempts to better determine both the origins of and cultural reasoning behind this seemingly ingrained mentality and behavior.

Benjamin Higby Strange

1:30 p.m.

Kauke 038

Political Science Major

Advisor: Angela Bos

More than just a Meal: The Economic Utility of Social Capital in the Lives of the Poor

Neo-liberal market theorists contend that a cash stipend has more utility for the poor than a meal, putting aside that a meal provides opportunity to build social capital. By conducting participant observation at a meal program, the researcher discovered that the poor benefited economically from building and spending social capital by developing informal credit markets, increasing market knowledge, increasing knowledge of area services and developing psychologically comforting safety nets. This instrumental value provides some evidence that meal programs have utility extending beyond the food provided and that social capital affects economic security for individuals.

K.C. Sullivan

1:00 - 3:00 p.m.

Severance Hall Second Floor

Biochemistry & Molecular Biology Major

Advisor: Stephanie Strand

Erika Takeo

9:30 a.m.

Lean Lecture Room

Self Designed: Global Sustainability Studies Major

Advisor: Matthew Mariola and Charles Kammer

People and Plants in a Rust Belt City: A Critical Analysis of Urban Agriculture In Cleveland, Ohio Using a Sustainable Development Framework

The purpose of this study was to take a critical snapshot of Cleveland, Ohio's urban agriculture movement using a sustainable development lens. The researcher surveyed and interviewed 21 representatives of a variety of newer urban agriculture projects ranging from market farms and community gardens to orchards and vineyards. According to a traditional sustainability framework, projects scored well environmentally, poorly economically, and mixed socially. However, the use of a more holistic sustainable development framework that heightens the importance of justice (equitability and fairness) and democracy (inclusive, grassroots procedures) reveals a different story. These measures prove to be far more important to urban agriculture participants, who contest traditional sustainability metrics and recast the goals of their projects in terms of food justice and community empowerment. Urban agriculture ends up having a lot more to do with people than plants.

Celeste Tannenbaum

2:30 p.m.

CoRE Cube in Andrews Library

Religious Studies Major

Advisor: Charles Kammer

Gay, Asian, and Religious: The Search for Religious Community by Queer Asian Americans

This project examines the religious communities of queer Asian Americans. Queer Asian American Theology is an emerging field currently studied by only several scholars. In his article 'Reclaiming Our Traditions, Rituals, and Spaces: Spirituality and the Queer Asian Pacific American Experience,' Dr. Patrick Cheng isolates shared experiences which revolve around the lack of acceptance in both Asian American and queer communities. He offers ways by which such individuals can heal from these experiences by the process of reclamation. In this project I interviewed queer Asian Americans about their involvement in religious communities. I then return to Cheng's work to analyze his arguments and examine their relevancy, as well as to identify several additional common experiences and possible solutions. This project intends to query not just what theologians or religious leaders believe about the religious needs of queer Asian Americans, but to explore the views and experiences of the individuals themselves.

Deidre Thompson

9:00 - 11:00 a.m.

Freedlander Lobby

Communication Studies Major

Advisor: Michelle Johnson

Attachment Theory Applied to Middle School Students' Parent and Peer Relationships in Connection to Their Self-Reported Academic Achievement and Involvement

The purpose of this study was to compare the attachment relationships middle school students have with their parents to the attachment relationships they have with their peers. In addition to comparing these attachment relationships, this study investigated the relationship between attachment style and academics. In this study, middle school students were surveyed using two identical surveys; except one contained a six question section on mother attachment while the other contained a six question section on father attachment. The findings of this study showed that there is a significant relationship between girls and boys and the likelihood of having a secure parent and peer attachment relationship along with academic involvement and achievement. Additionally, there is a significant relationship between seventh and eighth grade students and their attachment style and the likelihood of having a secure parent attachment relationship and academic involvement and achievement.

Emily Timmerman

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Art History Major

Advisor: Diana Presciutti

Leave it to the Streets: An Examination of the Consequences of Memorializing Street Art

Street art, an inherently anti-institutional art movement, resists preservation and formal recognition. However, as the art has become more and more recognized and established, a public desire to save this work has necessitated a compromise. Museums and galleries attempt to institutionalize this work, independent alternative exhibition projects have emerged, and finally, plexiglass is installed on the street, covering the pieces where they were originally tagged. All three options challenge the integrity of the work in significant and specific ways: the importance of context is questioned, illegality is typically lost, hierarchies and an element of selectivity are introduced to the work, the transitory and collaborative elements afforded this art on the street are typically eliminated, etc. This study examines the ensuing consequences, and attempts to illustrate the complexities of maintaining the ethos of this movement in the face of formal recognition.

Abigail Toothman

1:00 - 3:00 p.m.

Severance Hall Second Floor

Biochemistry & Molecular Biology Major

Advisor: Stephanie Strand

Characterizing the Role of 2-OH-PCA in P. Chlororaphis Pathogenesis

Due to rising drug resistance, novel antimicrobial drugs are needed. This study characterized 2-OH-PCA, the orange phenazine, in the virulence of 2 *P. chlororaphis* strains, Byrd1 and 48G9, to determine if its associated proteins, Pip and PhzO, would make effective drug targets. Characterization was completed by monitoring 2-OH-PCA regulation by Pip, determining the importance of 2-OH-PCA for virulence by KO PhzO, and completing *C. elegans* virulence assays. Despite experimental complications, important conclusions were made. First, PhzO and Pip gene presence was confirmed in 48G9 and Byrd1, along with the possibility of 2 variable PhzO genes. In addition, Byrd1 and 48G9 virulence was confirmed, exhibiting a strong inhibitory effect on *C. elegans* growth. Finally, evidence was obtained to support 2-OH-PCA as a toxic virulence factor. These conclusions provide insight into the role of phenazines in bacterial virulence for future studies looking to characterize them and their ability to provide drug targets.

Melissa Torma

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Mark Wilson

The paleoecology of a brachiopod-bearing marly subunit of the Matmor Formation, Israel: A Middle Jurassic shallow marine environment near the equator

The Matmor Formation is made up of alternating fossiliferous marl and limestone layers ranging in age from the Callovian to the Oxfordian exposed in Hamakhtesh Hagadol in the Negev of southern Israel. During the Middle Jurassic, this formation was located at the equator in a shallow marine environment. This study focuses on Subunit 51 of the Matmor formation, upper Callovian, that is made up of a marl sediment. The fossil community is mostly made up of brachiopods (mostly terebratulids and rhynchonellids), crinoids, echinoids, scleractinian corals, and calcareous sponges. Mollusks, worms, and bryozoans were also found. The subunit is made up of patchy reefs, most likely kept at an early development stage because of disruptions from storm deposits. The main focus of this study was on the identification and paleoecology of the brachiopods in this subunit and how they fit into the paleoecology of the subunit as a whole.

Margaret Trainor

10:00 a.m.

Kauke 038

History Major

Advisor: Hayden Schilling

The Great Matter: The Role of Environment and Queenship in the Decline of the Catholic English Monarchy

For the Senior Symposium I would like to do an oral presentation. My thesis deals with the role and impact of environment and queenship on the development of early modern European politics. Specifically, I examined Isabella of Castile, Catherine of Aragon, and Mary Tudor and their cataclysmic role in the decline of the Catholic monarchical tradition in England. Additionally, I explored the role of foreign correspondence and diplomacy, exemplifying the global and interrelated nature of the political climate. For my presentation, I would like primarily to explain the development of my thesis and the importance of my topic. I would also like to make a poster board in order to provide some visual support. This would include mostly images of the major characters of my thesis, as well as figures such as genealogies and maps.

Alex Turner

2:15 p.m.

Kauke 305

Chinese Major

Advisor: Rujie Wang

Three Appearances of Literary Youth and a New Definition

An analysis of the Chinese term Literary Youth through the work and words of three Chinese writers. Three Chinese poets were interviewed and their work analyzed in order to understand what subset of the Chinese population the term 'Literary Youth' refers to, paying particular attention to the effect of historical changes in Chinese society on Literary Youth, the modern manifestation of Literary Youth, and what timeless qualities of humanity connect Literary Youth to one another.

Lauren Tweddale

2:00 p.m.

Taylor 111

English Major

Advisor: Jennifer Hayward

Minds on Fire: Or How I Learned to Stop Being Paranoid and Love the Young Adult Dystopia

This Independent Study examines the genre of the Young Adult dystopia through analysis of Suzanne Collins' Hunger Games trilogy as well as the novels *Across the Universe* and *A Million Suns* by Beth Revis. Through discussion of technology and mind control within these novels, my Independent Study calls into question the definition of the dystopian novel, and argues that the Young Adult dystopian genre specifically has presented a progressive view of the dystopian genre. It also discusses how these novels present revolution after the characters within the novels discover the control to which they have been submitted, and how it presents a progressive depiction of government-citizen relationships. Finally, my Independent Study goes on to speculate about why Young Adult novels may present a view of naturalized control, allowing young adults to examine their own lives and perhaps provide some catharsis.

Lauren Vargo

9:00 a.m.

Lean Lecture Room

1:00 - 3:00 p.m.

Writing Center in Andrews Library

Geology Major

Advisor: Meagen Pollock and Greg Wiles

Tree-Ring evidence of North Pacific volcanically forced cooling and forcing of the Pacific Decadal Oscillation (PDO)

Two undocumented strong volcanic eruptions (SVEs) in 1698/9 and 1809 have been previously identified in ice cores and tree-ring density data. The first part of this study uses tree-ring width data from the Gulf of Alaska (GOA) to provide further evidence that these eruptions occurred. The second part of this study uses the same tree-ring data to present a reconstruction of the Pacific Decadal Oscillation (PDO). A recently published modeling study suggests that SVEs have significant impacts on GOA climate, including forcing the PDO into a negative phase. To evaluate this hypothesis, the reconstruction presented in this study is analyzed at the times of the 1698/9 and 1809 eruptions. Our analyses find that while these SVEs correlate with negative phases of the PDO, both eruptions occurred when the PDO had already entered a negative phase. Therefore, it appears that SVEs may intensify negative shifts of the PDO, but that the PDO is also driven by other factors.

Jasmine Verreen

1:00 p.m.

Schoolroy Theatre in Freedlander

Theatre & Dance and Africana Studies Double Major

Advisor: Jimmy Noriega and Charles Petterson

Gallery of A Colored Girl: How Black and White Perceptions of the Black Female Body Affect the Ways Millennial African American Perform Race and Gender on and Off Stage

Gallery of a Colored Girl is Jasmine Verreen's senior independent study project under the College of Wooster's Theater and Dance Department. It consists of a written thesis paper, a 40 minute devised performance art piece, and a performance journal. Using performance theory, critical race theory, and black feminist theory as its theoretical base, both the live performance and thesis for Gallery of a Colored Girl explore the ways Millennial African American women have learned to perform their identity in response to their foremothers' performances of race and gender. For the College of Wooster's Senior I.S. Symposium Jasmine Verreen will present scenes from Gallery of a Colored Girl that reflect her own life experiences as a Millennial African American woman, and host a brief talk back about the work with her audience.

***Please note the due to nudity and violent images this performance may not be fit for young audiences.

Erica Villa

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Karl Feierabend

The Ultraviolet Photochemistry of Aqueous Oxalate Species

Oxalic acid is found in wastewater treatment plants (WWTPs) and has been identified as an oxidation by-product in water treatment. Ultraviolet (UV) irradiation is used to disinfect the WWTPs through complex photochemical transformations that change the water composition and affect disinfection by-product formation. The goal of this project was to determine the degradation mechanism of the three forms of oxalic acid when exposed to UV light at 254 nm. The oxalate species were studied by altering the initial conditions (pH, concentration) of each solution. High-performance liquid chromatography and a kinetics model were used to learn about the degradation mechanism. The model worked best when initial pH values were 6.13, 6.02, 2.14, and 0.21, where the initial concentration was 1.00 ± 0.02 mM oxalate. The quantum yields for the decomposition of total oxalate were calculated to be 0.036 mol·photon⁻¹, 0.043 mol·photon⁻¹, 0.011 mol·photon⁻¹, and 0.146 mol·photon⁻¹, respectively.

Philip Wales

1:00 - 3:00 p.m.

Taylor First Floor

Physics and Mathematics Double Major

Advisor: John Lindner and R. Drew Pasteur

ξ. (Spring Dot)

The ξ. (pronounced “spring dot”) body problem is a unique, two dimensional, three body problem where three point masses are gravitationally attracted to each other. The uniqueness of the system is a linear elastic force between two of the point masses as though they were connected by an ideal spring. The equations of motion for the system were derived in multiple Cartesian and polar form using both Newtonian analysis and the Euler-Lagrange equations. Conditions for circular orbits of the ξ. system were solved. The equations of motion for the ξ subsystem were reduced to a dimensionless form.

Clare Walsh

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Paul Edmiston

Triclocarban in Biosolids and Biosolid Amended Soils

The study's goal was to help understand the distribution and fate of pharmaceuticals and personal care products (PPCPs) in the environment. PPCPs enter the environment from biosolids applications to lands. Biosolids remain after the wastewater treatment process. The study's target PPCP is triclocarban (TCC), an antimicrobial agent added to many PPCPs. To study TCC's potential to enter the environment; local treatment plant lagoon sludge and local farm biosolid amended soil were obtained. Liquid chromatography tandem mass spectrometry was considered for analysis but because the samples were not being ionized high performance liquid chromatography-ultraviolet detection was used. Extraction samples were analyzed and peaks that eluted at the same time and wavelength were determined to be TCC peaks. The study analyzed sludge samples in triplicate and found an average concentration, corrected for the extraction efficiency, of 8.7 µg/g, 8.6 µg/g and 8.2 µg/g, respectively.

Stephen Wanner

1:00 - 3:00 p.m.

Severance Hall Second Floor

Biochemistry & Molecular Biology Major

Advisor: Paul Edmiston

Protein Drug Delivery Using Swellable Organically Modified Silica

Recent investigations of swellable organically modified silica (SOMS) demonstrate potential use as a drug delivery system. The objective of this study is to evaluate SOMS as a possible protein drug delivery system. Biocompatibility was evaluated by growing *E. coli* in liquid media with SOMS and monitoring growth rate. Cell growth was slightly enhanced as SOMS absorbed waste products from the media. The ability of SOMS to be loaded with and subsequently release proteins in a stimulated manner was investigated. Proteins were released from SOMS upon alternation of the aqueous environment with a swelling agent (ethanol). Results show that SOMS is able to efficiently entrap and release proteins in the presences of a stimulus. Lastly, the stability and folded state of proteins entrapped in SOMS was analyzed through fourier transform infrared spectroscopy (FT-IR). Results indicate that entrapped protein was not denatured, but may be in a unique constraint or environment.

Devin Warner

1:00 - 3:00 p.m.

Kauke Second Floor Lobby

History Major

Advisor: Elizabeth Swedo

With Great Power Comes Great Responsibility: The Historical and Social Relevance of Comic Books in the United States

Comic books have been a source of enjoyment for decades but they have now taken on a much deeper meaning than ever before. Comics, as a medium, have been used to address historical events by their writers and to give commentary on these events both political and social. They have been incredibly progressive in their outlook on human rights. They have been used by the writers to promote social change and instill messages to create a better tomorrow. While the messages have been increasingly progressive the images have become increasingly violent. My study has looked at how comics reflect contemporary society and how they can be seen as promoting social messages. I also examine how the violence depicted in comics reflects the increasing amounts of violence in the media and how that has caused desensitization in society.

Allie Webb

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Jennifer Bowen

Extensions of the Farey Sequence and Ford Circles

The Farey Sequence of order n is the sequence made up of all non-negative irreducible proper fractions between 0 and 1, arranged in increasing order, with denominators not exceeding n . (Note that in this definition, order does not refer to the size of the sequence). The terms of the Farey Sequence have geometric applications that include the Farey Starburst and Ford Circles. In addition, the sequence can be found within a graphic representation of non-negative rational values called the Farey Tree, which is contained within the Stern-Brocot Tree.

Joe Wilch

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics and Geology Double Major

Advisor: Robert Wooster and Shelley Judge

Insights into the tectonic evolution of the northern Snake Range metamorphic core complex from $40\text{Ar}/39\text{Ar}$ thermochronologic modeling results, northern Snake Range, Nevada

The Snake Range represents a classic example of a metamorphic core complex, where large-scale crustal extension has formed a detachment fault separating highly-strained metamorphosed rocks in the footwall and normally-faulted sedimentary rocks in the hanging wall. There is still considerable debate about the formation of metamorphic complexes. This study presents multiple diffusion domain modeling of K-feldspar $40\text{Ar}/39\text{Ar}$ thermochronologic results to better assess the tectonic evolution of the MCC. The thermal histories show a phase of rapid cooling occurring at 20 Ma near the center of the range and 16 Ma near the eastern flank. Previous thermochronologic studies in the area have incorporated irregular muscovite age spectra in their interpretations. Compositional data as well as analyses of step-heating data of muscovite separates show that muscovite samples may be a combination of at least two separate muscovites representing different tectonic phases. Drawing conclusions from these muscovite data should be approached with caution.

Elaine Wilcox-Cook

11:40 a.m.

Lean Lecture Room

Psychology Major

Advisor: Amber Garcia

Insults to Significant Others

In close relationships, one member of the dyad expands their self-concept to integrate aspects of the other member of the dyad. My study examined differences of this self-expansion in young women in college, comparing its occurrence in close romantic others (boyfriends) and close platonic others (best friends). In my study, I measured differences in self-expansion by examining the direction of protective impression management. My hypotheses regarding impression management and relationship type were mostly supported, with women engaging in more private impression management (indicating self-schema threat) in the platonic condition, and women in the romantic condition engaging in more public

impression management. This supports the idea that women tend to experience more self-expansion with their best friends than with their boyfriends, indicating important differences in the role that best friends and boyfriends play in terms of self-schema support.

Adam Will

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Sibrina Collins

The Synthesis and Characterization of Pt(II) and Au(III) Complexes as Potential Anti-Tumor Complexes

The many side effects and the onset of drug resistant tumors have rendered the drug Cisplatin unusable for some cancer patients. Motivated by these problems, researchers are continually searching to find new platinum based cancer drugs that are less toxic but still eliminate tumorous cells. The goal of this research project is to synthesize new metal coordination compounds that will be more effective than Cisplatin. The working hypothesis is that if a chosen ligand can effectively stabilize a platinum(II) center, the complex will exhibit cytotoxic effects on cancerous tumors. Gold(III) complexes will also be studied, in addition to the traditional platinum(II) complexes because they are isostructural and isoelectronic to the platinum complexes. The new ligand 2-pyrazyl-6(azaindole)pyridine was synthesized and both platinum(II) and gold(III) were coordinated to the ligand to make two novel metal coordination compounds.

Emily Williams

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics Major

Advisor: Pamela Pierce

The Golden Ratio

The golden ratio, or phi ($\phi = 1.6180339887\dots$), is a ratio that has interested mathematicians as well as artists, philosophers, and many others for over 2,000 years. For some this interest stemmed from its vast mathematical properties, while others were more interested in its supposed aesthetic appeal. This Independent Study explores the properties and appearances of the golden ratio throughout mathematics, the arts, and nature. It examines topics in mathematics including connections to the Fibonacci sequence, continued fractions, fractals, geometry, and Penrose tiling. In addition, it discusses other subjects in which the golden ratio is present including its history throughout art, architecture, and writing as well as looking at the more scientific appearances in quasicrystals and phyllotaxis.

Tyler Williams

9:00 - 11:00 a.m.

Taylor Second Floor

Biology Major

Advisor: Stephanie Strand

An Investigation into the Methods of Detection of Toxocara Species Eggs in the Environment and the Differentiation of G217B and WU24 Strains of Histoplasma capsulatum by Restriction Length Polymorphisms in the CBP Gene

Toxocariasis is a human infection with the larva of the *Toxocara* species of parasitic worms and histoplasmosis is the most frequent respiratory mycosis in the world (Chang and Rodas, 2012), caused by inhalation of the dimorphic fungus *Histoplasma capsulatum*. Both of these pathogens are contracted from the environment, making molecular methods giving information about this contamination imperative to understanding the prevalence of these diseases. In the experiments outlined in this thesis, the LAMP DNA amplification method was not a usable method to determine environmental presence of *Toxocara* species eggs due to false positive readings. PCR was also unable to identify *Toxocara* egg DNA from contaminated fecal samples. There are multiple strains of *H. capsulatum* and this study identifies a PCR-RFLP method that is capable of identifying two of these strains with high specificity. Specifically, G217B, classified as NAm2, and WU24, classified as NAm1, which are endemic to North America (Edwards and Rappleye, 2011).

Annie Woller

1:00 p.m.

Schoolroy Theatre in Freedlander

Theatre & Dance Major

Advisor: Kim Tritt

Inside/Out

A videodance is a dance that is created for and exists solely on film. This paper investigates how the choreographic concepts of time, space, and energy are changed when dance is put on film by looking at experimental filmmaker Maya Deren and modern dance choreographer Merce Cunningham. It is their differing views of the dance/camera relationship that dictates the ways they utilize these cinematic shifts. Film mechanics and theories show that time, space, and energy are manipulated on film in defined ways, so it is the perceived dance/camera relationship that directs the methods of manipulation. I then go through the process of creating a videodance, placing my ideas in terms of the research done on Deren and Cunningham. I go on to discuss how my view of the dance/camera relationship shaped the choreographic choices I made.

Kendal Wong

9:00 - 11:00 a.m.

Taylor Third Floor

Mathematics and Psychology Double Major

Advisor: Jim Hartman and Gary Gillund

Exercise Intention and Motivation: Intrapersonal Relationships, Feedback, and Personality

Exercise is a common component of weight maintenance and weight loss strategies. In order to examine variables that can create effective health behavior change, this study surveyed 244 undergraduate female students with an online survey. The study had a 3x2x2 experimental design and was analyzed using three 3-way ANOVAs. In order to further understand the analysis of variance, the mathematical theory behind it was explored. Results indicate a significant main effect of personality on intention and internal motivation, a significant two-way interaction between source and feedback on exercise intention, and a significant three-way interaction between source, feedback, and personality on exercise intention. No other results were significant. The findings suggest that source, feedback, and personality all influence one's exercise intention and motivation; however, future research should closer examine these differences to find larger effects.

Hannah Woodske

1:00 - 3:00 p.m.

Freedlander Lobby

Psychology Major

Advisor: Claudia Thompson

Athletes' Self and Metaperceptions of The Coach-Athlete Relationship and Its Impact on Athletes

The purpose of the current study was to examine relationships amongst various perceptions of athletes. It was hypothesized that a positively perceived coach-athlete relationship would be positively correlated with high self-efficacy, motivation, satisfaction, and relational inferred self-efficacy (RISE). Another hypothesis predicted that RISE scores would be positively correlated with high self-efficacy. A total of 118 student-athletes completed a 116-item survey. The data were analyzed with Pearson's r correlations to examine the interrelationships among the athletes' perceptions of the coach-athlete relationship, their self-efficacy, motivation, satisfaction, and RISE scores. The results supported four of the five hypotheses such that a positively perceived coach-athlete relationship was significantly positively correlated with high self-efficacy, satisfaction, and RISE. Additionally, the correlation between RISE and self-efficacy was stronger than the correlation between the coach-athlete responses and self-efficacy, suggesting the importance of metacognitions about the coach-athlete relationship in athletes' sense of competence, motivation, and satisfaction in their performances.

Liz Worrall

1:30 p.m.

Taylor 111

Women's, Gender, & Sexuality Studies Major

Advisor: Stacia Kock

M to F to Endangered: The Violent Consequences of Breaking the Gender Binary

A great deal of research has been conducted concerning crimes and aggression against lesbian and gay individuals, however there is a gap in research when it comes to similar information regarding transgender individuals. My senior independent study uses four case studies in order to examine in more detail aggression and violence against transgender individuals. It attempts to understand potential triggers including differences in gender identity, which lead to cases of assault or even murder. My research builds from information in the DSM-IV as well as in feminist texts including works from Butler, Bornstein and West and Fenstermaker. I aim to understand more about how gender identity as well as other factors may directly influence different perpetrator's actions.

Matthew Worth

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Paul Bonvallet

Preparation of the bip Ligand for Use in a Photo and Metallo Responsive Polycatenane

Stimuli responsive materials offer potential for use in many applications such as optics, information storage, and greenhouse gas capture. Azobenzene and the bip ligand can both be incorporated into a material to impart either photo or metallo responsiveness, respectively. A molecule that consists of an azobenzene core substituted with a bip ligand on both sides can polymerize into a metallo-supramolecular polymer. If the bip ligands have an alkene functional group on their ends, then ring closing metathesis can then close the monomers into rings in a way that forms a polycatenane. After only

573 mg of the bip ligand were synthesized in two separate trials (5.96 and 7.3% yield, respectively) it was determined there was not enough to continue with the synthesis, and bip precursor was then synthesized in two steps (29.11 g, 90.7% overall yield). A major impurity of the bip forming reaction was also investigated.

Alexia Wynn

2:15 p.m.

Kauke 038

Spanish and English Double Major

Advisor: John Gabriele and Jennifer Hayward

Heroic Replicas

The protagonist of Don Quixote de la Mancha (1605, 1615) by Miguel de Cervantes and Milkman, the protagonist of Song of Solomon (1977) by Toni Morrison, both embark on journeys of self-discovery. Although written nearly four hundred years apart, Don Quixote and Milkman are bound by certain aspects of the archetype of the modern hero and heroic quests that their characters embody and their journeys replicate. Analyzing Don Quixote de la Mancha and Song of Solomon side by side, I show how both authors construct and deconstruct the illusions and realities of the worlds they depict in their respective novels and how the modern evolves into the postmodern

Hava Yoast-Hull

1:00 - 3:00 p.m.

Sussel Gallery in CWAM

Studio Art Major

Advisor: Bridget Milligan

Experiencing the Change of Home

Home is a place of comfort. It is a place that everyone craves to go to after a long day. However, for someone who has lived in six different states and traveled across America multiple times, my definition is somewhat unconventional. For me, home is the land or environment that carries an emotional personal history and memory. For my Senior Independent Study I have created three segments that are representative of my nostalgia of landscapes. With the use of digital photography, the Van Dyke process, and family photographs I created a visual representation of my definition of home. I am attached to the landscapes I have created and feel a sense of personal belonging and security. My home will frequently alter and evolve, but I will always have a constant longing for mountains, hills, fields, deserts, and oceans.

Andy Young

1:00 - 3:00 p.m.

Severance Hall Second Floor

Chemistry Major

Advisor: Sarah Sobeck

Impact of Solvent Upon the Photo-Induced Chemistry of 1-Acylaminoanthraquinones

1- Acylaminoanthraquinones function as models for biological systems containing hydrogen bonding interactions between carbonyl and amino groups. We aim to gain a fundamental understanding of the impact of the solvent environment on

photochemistry of these systems. Compounds with varying acyl substituents are examined. The different substituents enable the alteration of the extent of excited state proton transfer observed, ranging from a nearly complete charge transfer to no noticeable transfer. Computational studies are used to provide molecular level insight to the spectral data. To analyze the proton transfer, fluorescence spectroscopy is used, as both the locally excited state and charge transfer tautomer are fluorescent. Transient absorption spectroscopy is used to gain kinetic data, including reaction and decay rates, while temperature-dependent fluorescent spectroscopy allows for evaluation of reaction thermodynamics. Spectroscopic measurements are performed in a series of solvents with different properties to determine the impact of solvent interactions upon the proton transfer.

Molly Young

1:00 p.m.

Kauke 038

East Asian Studies Major

Advisor: Mark Graham

你吃了吗?*Have you eaten?:*

Using the Westernization of d to Explain the Transformation of the Chinese Identity in America

This thesis explores the changing Chinese American identity through the changes to Chinese food. Understanding one's identity is a difficult task because of its abstract nature; using a concrete element such as food, makes this task far easier. This method of using food to describe the Chinese American identity is especially helpful because of the importance placed on food in Chinese culture. For the Chinese, food is central to their identity because it is believed that the correct intake of food achieves a balance in one's life. It is also helpful, because the Chinese restaurant in America is a common sight and many Americans' only exposure to Chinese culture. Through a study of the changing Chinese American identity from the Exclusion Era in America to the present and through a study of the changes of Chinese cuisine in America over the same period of time, we can see how these changes mirror one another and allow for an understanding of what is the Chinese American identity.

Mike Zhang

1:30 p.m.

Kauke 305

Chinese and International Relations Double Major

Advisor: Rujie Wang and Amyaz Moledina

Sino-African Relations: Various Media Perspectives and The Impact of Chinese FDI on African Inequality

In the context of a popular topic, China's investment in Africa, this paper delves into China's resource focused investment and the impact that this investment has on African wage inequality. The theoretical model expands on the classic 2x2 Heckscher-Ohlin Stolper Samuelson model, and a more recent theoretical ideology known as the 'Dutch Disease' model, to show how changes in the relative supply and relative price of African resource goods can affect African wage inequality. A discourse analysis comparing and contrasting the conflicting perspectives of the Chinese media, Western media, and African media revealed three different ideological stances on the issue of Sino-African relations. OLS regression models were conducted, and although results showed that Chinese FDI and corruption had a correlation with greater African inequality. However, due to data availability and estimation issues, the results should be taken with caution and under suspicion.