

SCHEDULE OF EVENTS

(WAR) Warfield Hall, Allen Auditorium

(SCI) Science Center Auditorium

9:00 to **SESSION ONE (SCI)**

9:50 AM Welcome Address by Dean Elissa Heil
Moderated by Megan Fangman '17

Samantha Chambers

“The Influences of Weekly Exercise on Self-Reported Levels of Parental Stress Experienced by Parents in Working Households”

Jordon Richardson

“Differences in Motivation for Community Gym Members Reaching Goals”

Emily DeNoma

“An Empirical Analysis of Alcohol Consumption Among College Students Participating in Clubs”

9:00 to **SESSION ONE (WAR)**

9:50 AM Welcome Address by President Barbara Mistick
Moderated by Nana Ama Ohene-Manu '17

Allison Strayer

“Professional Online Portfolio”

Lindsey Sutton

“Moments to Hold”

Alexis Ankro

“Balloons”

SCHEDULE OF EVENTS

(continued)

10:00 to **SESSION TWO (SCI)**
10:45 AM Moderated by Ann Bianca '17

Asia McGee

*"Measuring Attitudes and Behaviors Towards
Individuals with Cognitive Disabilities"*

Cassandra Schoenenberger

*"An Analysis of the Relationship Between Passion
and Academic Success"*

John King

*"A Stress Comparison Between New and Career
Police Officers"*

10:00 to **SESSION TWO (WAR)**
10:45 AM Moderated by Morgan Wonders '16

Kerry Salmi

*"Forgetting Martin Delany: Black Nationalism and
Historical Memory"*

Patrick Fox

"In No Particular Order"

Erin Burd

*"From Domesticity to Mobility: The Progression of
the Victorian New Woman"*

SCHEDULE OF EVENTS

(continued)

11:00 to **SESSION THREE (SCI)**

11:45 AM Moderated by Tracy Dile '18

Lindsey Sutton

"Temperature Dependence of Viscosity and Polarity of Phosphonium Based Ionic Liquids"

Ghada Tafesh

"The Relationship Between Oral Anticoagulant Apixaban and Fish Oil Supplementation in a Stroke-Prone Animal Model"

Amadea Clement

"An Analysis of Histamine Overload and its Correlation to Diet and Daily Activity and Histamine Intolerance"

11:00 to **SESSION THREE (WAR)**

11:15 AM Moderated by Roberto Porto de Oliveira

Dianna Clemens-Heim

"Claiming Ground in Pennsylvania: Women Farmers Performing Feminism and Engaging Activism"

11:30 to **SESSION FOUR (DANCE STUDIO)**

11:50 AM Moderated by Professor of Dance Paula Kellinger

Julia Barra and Shannon McKenzie

"Rico"

"Fix You"

SCHEDULE OF EVENTS

(continued)

12:00 to
1:00 PM **LUNCH RECESS**

1:00 to
2:30 PM **POSTER SESSION**
Science Center, Second Floor Front Lobby

Ahmed Alshahrani

“The Role of BRCA 1 and BRCA 2 in the Development of Breast Cancer”

“An Epidemiological Modeling Approach to Study the Correlation Between Camels and MERS-CoV Under Certain Factors”

Abby Burkhart

“Epithelial Ovarian Cancer”

Amadea Clement

“Malignant Colon Polyps in Tubulovillous Adenomas”

Cheyenne Cooke

“Mammary Cancer in Rats”

Amber Dibert

“Squamous Cell Carcinoma of the Bovine Eye”

Amanda Haase

“Mammary Cancer in Big Cats”

Elizabeth Hauck

“Non-Hodgkin’s Lymphoma”

SCHEDULE OF EVENTS

(continued)

1:00 to
2:30 PM

POSTER SESSION (continued)

Science Center, Second Floor Front Lobby

Anna Harutyunyan

“Hepatocellular Carcinoma”

“Synthesis of Palladium (II) Azidothymidine and its Effects on Telomerase Expression in Human Hepatocellular Carcinoma Cells”

Erica Henry

“Esophageal Adenocarcinoma”

Ian Kuykendall

“Retinoblastoma”

Erin Stephan

“Epithelial Ovarian Carcinoma”

David Zuckerman

“Lung Cancer”

Gaser Ahmed

“The Effects of Low-Gliadin Wheat Products on Celiac Disease in NOD-DQ8 Mice Utilizing the tTG-IgA Test”

Ann Bianca

“Inquiry-Based Learning’s Effects on Neurotypical & Non-Neurotypical Students’ Comprehension of Stoichiometry”

SCHEDULE OF EVENTS

(continued)

1:00 to
2:30 PM

POSTER SESSION (continued)
Science Center, Second Floor Front Lobby

Vanessa Lybarger

“Evaluation of Factors that Increase the Prevalence of Pathogenic E. coli in the Conococheaque Creek”

Megan Fangman

“Silybin on Reducing Inflammation in Lupus”

Tracy Dile

“Effects of Apiary Practices on Colony Collapse Disorder in the European Honey Bee, Apis Mellifera”

Regina Monn

“Evaluating the Influence and Efficacy of Lactic Acid Bacteria on Rheumatoid Arthritis Through Different Modes of Administration”

Samantha Chambers

“The Influences of Racial Identity on Wilson College Students: A Campus Climate Study”

**Beverly Meyers, Gil Godlewski, Jessica Anderson,
Morgan Wonders**

“Parkinson’s Disease and its Effects on the Nervous System”

**Morgan Bechtold, Jennifer Laman, Tracy
Randall-Loose, Devynn Wiesniewski**

“Lung Cancer and its Effects on the Respiratory System”

SCHEDULE OF EVENTS

(continued)

1:00 to
2:30 PM

POSTER SESSION (continued)
Science Center, Second Floor Front Lobby

**Kristy Brammer, Nicole Cortez, Derrick Group,
Kayelynn Pittman**
“Cushing’s Disease”

Brittany Chandler, Cathy Rice, Sierra Watson
“Congestive Heart Failure”

Adele Reinoehl, Mary Beth Miller, Kaylie Smith
“The Fulton Farm at Wilson College”

1:00 to
1:50 PM

SESSION FIVE (SCI)
Moderated by Vanessa Lybarger ‘17

Danniele Fulmer
*“The Rights of Nature: Pioneering Legal Rights for
Ecosystems”*

Erin Bisceglia
*“SWOT Analysis of Dairy Farms in Franklin County,
PA”*

**Patricia Hall, Charles Meck, Marissa Rankin,
Morgan Shadle, Cassandra Watkins**
“Following King to Selma”

SCHEDULE OF EVENTS

(continued)

2:20 to
2:40 PM **HONORS SESSION ONE (SCI)**
Moderated by Professor Michael Cornelius

Jennifer Dodds

“Mythic”

2:40 to
3:00 PM **HONORS SESSION TWO (SCI)**
Moderated by
Assistant Professor Amanda McMenamain

Krista Dewald

“Empowerment of Migratory Students Within an Imperialistic Education System: A Project for Progress in ‘Learning Campus’”

3:00 to
3:20 PM **HONORS SESSION THREE (SCI)**
Moderated by Assistant Professor Steven Schmidt

Charlotte Flood

“Gender and Perceptions of Probation Officers”

SCHEDULE OF EVENTS

(continued)

3:20 to
3:40 PM **HONORS SESSION FOUR (SCI)**
Moderated by
Assistant Professor Amanda McMenamín

Katelyn Wingerd

“Positioned in the Center of the Infinite: An Analysis of the Works of the Writer Jorge Luis Borges Through a Literary-Mathematical Lens”

4:00 to
5:00 PM **CONFRONTING CLIMATE CHANGE**
GUEST SPEAKER (SCI)
Moderated by Assistant Professor Dave True

Maria Silvia Muylaert de Araujo

“Mitigation of Climate Change: Working Group III Contribution to the IPCC Fifth Assessment Report”

5:00 to
6:00 PM **RECEPTION**
Science Center, First Floor Front Lobby

6:00 PM **ACADEMIC AWARDS CEREMONY**
Science Center Auditorium

NOTES

Notes



Samantha Chambers

Advisor: Steven Schmidt

“The Influences of Weekly Exercise on Self-Reported Levels of Parental Stress Experienced By Parents in Working Households”

The objective of this study was to see if there is a relationship between the levels of exercise and the levels of self-report parental stress. Previous research has looked at the relationship between exercise and stress, but no research studies were discovered during the literature review process on parental stress and exercise. Data was collected from 15 participants over the course of four weeks. A pre and post survey, the Parental Stress Scale (Berry & Jones, 1995), was given on parental stress and an exercise questionnaire was given once a week for four weeks. Demographics such as gender, age of participant, age and amount of children in the home, job stress, and domestic stress were also collected.

It was hypothesized that increases in the levels of exercise would correlate with decreases in the levels of parental stress. The sample of parents were between 20 and 45 years old with children newborn to age 15. Only the scores of 11 participants were included in analyses due to either failing to complete the pre or the post parental stress survey. The majority of the sample reported little domestic stress and moderate job stress. The mean parental stress decreased over four weeks and was significant, $t(9) = 3.4151$, $p = 0.006$. Although there was an increase in mean exercise scores over time this increase was not significant and each participant's exercise levels remained fairly consistent over the four weeks. Although parental stress was only weakly correlated to parental exercise levels, $r(9) = 0.15$, $p = ns$, participants parental stress levels did decrease significantly even when there was no significant change in exercise. However, there were some demographic factors that influenced parental stress and parental exercise. The age of the parent was correlated with the participants average stress scores; in addition, job stress was correlated to average participant exercise levels.

Reference

Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, 12, 463-472.



Jordan Richardson

Advisor: Steven Schmidt

“Differences in Motivation for Community Gym Members Reaching Goals”

There have been many areas of research conducted focusing on exercise, goals and motivation. Some people might exercise for the health benefits if they have recently had been diagnosed with a health condition, whereas some might exercise for the appearance benefits in which they want to look good or have a specific body physique in mind for themselves. Specifically there has been little research done that has focused on individual’s extrinsic or intrinsic motivation to achieve appearance or health goals. The current study focused on appearance and health goals and how they are linked to extrinsic and intrinsic motivation in community Gold’s Gym members. All members were required to be over the age of 18 ($n = 21$), and were asked to take two surveys, one for appearance and health goals, and the other for extrinsic and intrinsic motivation. Both surveys were Likert scales. It was hypothesized that community gym members who attend the gym to achieve appearance goals will use extrinsic motivation more than members who attend to achieve health goals. Secondly, it was hypothesized that gym members who attend to achieve health goals will use intrinsic motivation more than members who attend to achieve appearance goals. The results from this study reported a correlation ($r = .51$) between the mean extrinsic motivation and the mean appearance goal ($p = .017$), which approached statistical significance. However, there was no link between mean health goals and mean intrinsic motivation.



Emily DeNoma

Advisor: Steven Schmidt

“An Empirical Analysis of Alcohol Consumption Among College Students Participating in Clubs”

Alcohol use among college students has always been a popular activity. Research on the subject has primarily focused on motives for students' drinking behaviors, and differences in alcohol consumption among college males and females, college athletes and non-athletes, and fraternity and sorority members. No research has been done on the differences in alcohol consumption between students who participate in clubs and students who do not participate in clubs. The current research study attempts to investigate those differences. Students from Wilson College (ages 18+) who participated in clubs ($n = 26$) and did not participate in clubs ($n = 16$) were surveyed about their drinking patterns. Four independent sample t-tests were run analyzing the number of standard alcoholic drinks that students consumed per week and per month, and how many times students consumed more than five standard alcoholic drinks per week and per month. Results revealed students who did not participate in clubs reported significantly higher drinking levels overall, and this difference was most significant in the domain of standard alcoholic drinks per month, $t(40) = -2.397$, $p < .05$. Implications of these findings suggest college students who do not participate in clubs are more likely to consume a greater amount of alcohol than students who participate in clubs.



Allison Strayer

Advisor: Philip Lindsey

“Professional Online Portfolio”

In the growing world of technology, artists have to adapt to the ever-changing rules and standards of the industry. In graphic design and media, there have been changes in the way that a portfolio is constructed and displayed to employers. The jump to a website containing design samples and personal information has been the largest step. Now, employers seek an online portfolio to examine the work of the applicant. To this effect, in the Graphic Media major, I am carefully creating a web-based portfolio. Constructed by hand through my knowledge in HTML5, CSS3, and Adobe Dreamweaver software, I am able to further demonstrate my skills that are sought out within the industry, as my website is an active piece in my portfolio. My intention is to make this portfolio accessible to potential clients, as a source to review my past and current work to see if my style, intuition, and training will fit their business and design needs.

The content within my online portfolio is very important. As a Graphic Media major, I must demonstrate that I have understanding in a wide variety of fields, such as photography, print design, and web design. My portfolio will include both traditional dark room, and digital photography. I will also combine my design samples for print. This will be a combination of pure design work, as well as some samples of design that are centered on advertising. These areas will allow me to be seen as someone who is both capable of creating the design and creating the layout for which it will be publicized. Finally, samples of web design, both code and aesthetic, will be included. These two elements show an employer or a potential client that I understand the backend of web design with code, but I am also fluent in understanding specific design needs. The combination of these works will be able to show employers that I am able to create, design, and finish artwork in a variety of formats. The portfolio will of course have editing capabilities to add or delete material as my body of work and my experience expand.



Lindsey Sutton
Advisor: Philip Lindsey

“Moments to Hold”

There are many moments in life when we strengthen the bonds we have with loved ones, but too often these moments go unnoticed or a sincere appreciation for them is lacking. The connections we have with others, especially those closest to us, are often what help us through each day. If we fail to take time to appreciate these connections, as well as the moments that strengthen them, then we are unknowingly weakening our bonds.

This new series of work was made by taking a photograph of a moment between two people, and then using that image as a point of departure in the development of a painting on canvas. Through this process, a sincere effort to make a point is shown. By choosing which parts of the photograph to make the focus of the painting, a clearer message can be conveyed, and the viewer has more time to consider the moment and to become absorbed in the moment being depicted.

My intention with this new series of paintings is to explore moments, obvious or not, where bonds are strengthened and memories that can bring happiness are made. My hope is to show that our quality of life can be improved if focus on the positive aspects of a relationship are given time to mature and grow.



Alexis Ankro

Advisor: Philip Lindsey

“Balloons”

Balloons is an animated short story of a robot’s journey home after retrieving a bundle of balloons. What begins as a simple task becomes an adventure as the robot must overcome a distraction while waiting for the bus to make his way across town. Originally conceived as a traditional animated short through individual hand-drawn cels, *Balloons* was converted into a computer generated animation through the use of state-of-the-art software.

Written, directed, animated and produced by Alexis Ankro

**Asia McGee**

Advisor: Steven Schmidt

“Measuring Attitudes and Behaviors Towards Individuals with Cognitive Disabilities”

Stigma toward individuals with disabilities has been an undeniable common phenomenon. Stigma results in certain attitudes and perceptions that are reflected in a person's behavior toward an individual or a group. This research looked at just how much a person's attitudes were related to their behaviors in anticipation to meeting an individual with cognitive disabilities through a correlational study. The researcher gave a survey to participants ($n = 12$) to gauge attitudes. The researcher also recorded the participant's physiological responses by using a two way mirror to note the responses as well as by using a blood pressure and pulse monitor. It was hypothesized that the participants would have a positive correlation between their attitudes and behaviors. Results of the research showed that there was a positive correlation ($r = 0.46$) between attitudes and behaviors, but it was not statistically significant. What was found was that those who reported more stigmatizing attitudes showed more behaviors and those who showed less stigmatizing attitudes showed fewer behaviors.



**Cassandra
Schoenenberger**

Advisor: Steven Schmidt

**“An Analysis of the Relationship Between Passion
and Academic Success”**

There is a substantial amount of research on work engagement (Bakker, & Bal, 2010; Bakker, Demerouti, & Brummelhuis, 2012) and performance (Dubreuil, Forest, & Courcy, 2014), personality traits (Noe, Tews, & Marand, 2013; Farsides, & Woodfield, 2003) and motivation (Prowse, & Delbridge, 2012), and on passion (Vallerand, & Verner-Filion, 2013) and academic engagement (Stoeber, Childs, Hayward, & Feast, 2011). What has not been investigated in research is if a student’s passion correlates with his or her academic performance and how it may differ between upperclassmen and lowerclassmen. This study was an analysis of the relationship between passion and academic success. It was hypothesized that there would be a positive correlation between passion and GPA. It was also hypothesized that upperclassmen would have higher passion than lowerclassmen. A survey on student’s passion toward their major area of study was sent to all Wilson College undergraduate students, 41 students participated in the study. It was found that the correlation between passion and GPA was not significant. A two-sample t-test revealed that there were no significant differences in passion between upperclassmen (27) and lowerclassmen (14). The hypotheses were not supported. One limitation to this study is the small sample size of only 41.



John King

Advisor: Steven Schmidt

“A Stress Comparison Between New and Career Police Officers”

Law enforcement requires the ability to adapt to situation specific occupational stressors; therefore, it is hypothesized that career police officers will report less stress than new officers. Participants included 10 deputies from a Sheriff’s Department in a mid-Atlantic state, with law enforcement service ranging from 12 years to 25 years. Participants completed a survey in which they rated their perceived stress in 13 situations that they may be faced with during their time as a law enforcement officer. Contrary to the hypothesis, more experienced officers reported higher perceived stress than their counterparts with fewer years of service, however, this correlation was not statistically significant. These findings suggest that self-perceived stress increases after repeated exposure to occupational stressors.



Kerri Salmi

Advisor: Kay Ackerman

“Forgetting Martin Delany: Black Nationalism and Historical Memory”

Before Malcolm X and Marcus Garvey became America’s most notable Black Nationalists, there was Chambersburg native Martin Robison Delaney, 1812-1885. Delany was a physician, author, explorer and activist who spent his life devoted to elevating African Americans to a position of full equality with whites. Eventually, Delany’s views evolved from supporting integration to emigration as the best way to provide this, which put him in the middle of a highly contested national debate, and found him in opposition to many notable African-Americans, including Frederick Douglass. As Delany wrote in the 1854 Black Emigration Manifesto, “what is now left for us to do, is to discover and apply a sovereign remedy—a healing balm to a sorely diseased body...The liberty of no man is secure, who controls not his own political destiny... A people, to be free, must necessarily be their own rulers....” Well-known in his time, Delany accomplished as much as his better-known contemporary, but is hardly known today, even by the people who reside in the town of his birth.

Why was Delany forgotten and someone like Douglass remembered?

One reason stems from his belief in self-determination and racial pride, which led him to focus on black audiences, while Douglass’s position as an integrationist led him to seek white audiences, who also wrote the history of that era. Another factor is how Black Nationalism itself has been viewed over time both in the white and black communities. As these views changed, so did the meaning and importance of Delany’s message to black and white Americans. Black Nationalism has largely been seen as a threat by white political leaders since the civil rights era; they have often spread fear of it since it was usually invoked by African Americans when they had been fighting for political rights. Delany did not advocate for emigration because he desired to be separated from white people, rather because he felt that white people would never allow African Americans political equality.



Patrick Fox

Advisor: Michael Cornelius

“In No Particular Order”

In No Particular Order is a collection of poems which shows, in chaotic form, an autobiographical chronology of my time in college. Each piece represents an impactful moment in the scattered way they would have occurred in the fluid discourse of living life. The poems’ depiction of life is split between moments “in college” and some exterior to it.



Erin Burd

Advisor: Larry Shillock

“From Domesticity to Mobility: The Progression of the Victorian New Woman”

During the nineteenth century, women were often idealized as either the angel or the monster eternal type. The angel is the holy woman who idolizes her husband while the monster is a sexualized female who pleases men’s lust only to be punished. The Victorian Era focused on propriety at all costs, a focus on duty that led to a countermovement that would reevaluate women’s identity. Thus, in novels, the New Woman emerged in opposition to the eternal types. This new archetype sought to renegotiate marriage and social mobility while also humanizing women. The New Woman desired work outside of the domestic sphere that would produce financial stability not dependent upon marriage. New Woman fiction often portrayed this character alongside an angel archetype to depict both the pitfalls of angelic behavior and the liberating potential of a new female archetype. By her example, the New Woman encouraged women to pursue education and careers—despite the risks attendant upon such behavior. Each New Woman novel examined in this thesis reflects a narrative trajectory in which the New Woman experiences mobility. However, the same force that allows her mobility also becomes the source behind her reinsertion into the domestic sphere. New Woman authors return their heroines in this way so that they might portray the exhaustion imposed upon women who attempt mobility in isolation. In Sarah Grand’s *The Heavenly Twins*, Evadne advocates for women’s knowledge of syphilis. The profound obstacles posed by society and mental trauma compromise her mobility. In Mona Caird’s *The Daughters of Danaus*, Hadria speaks for unconventional marriage. Despite Caird’s anti-family rhetoric, Hadria crafts an unconventional family to avoid the loneliness of the public sphere. In the end, it is family that reinserts her into the domestic sphere. Finally, Bram Stoker’s *Dracula* provides the most dynamic and mobile New Woman heroine as Mina Harker exhibits skills that contribute to Dracula’s demise. Though none of these female characters succeed in maintaining acquired mobility, they nevertheless contribute to the progression of New Woman fiction.

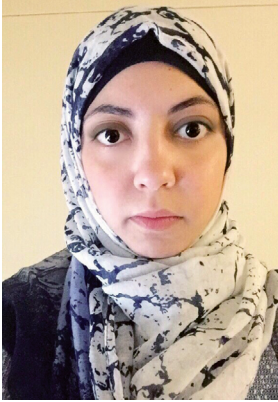


Lindsey Sutton

Advisor: Deborah Austin

“Temperature Dependence of Viscosity and Polarity of Phosponium Based Ionic Liquids”

Ionic liquids are considered “green” substances mainly due to their low volatility, low combustibility, and recyclability. These ideal chemical properties make ionic liquids useful for a wide range of applications; such as, catalysts and solvents in organic reactions. Ionic liquids are defined as substances composed solely of ions, which are in the liquid state at temperatures below 100 °C. They are typically composed of an inorganic anion and an organic cation; however, they can be composed of inorganic cations and anions. Investigation of physical properties is required for the less characterized phosphonium based ionic liquids. This study focused on the temperature dependence of the viscosity and polarity of tributyltetradecylphosphonium chloride, and tributylmethylphosphonium bis(trifluoromethylsulfonyl)imide. In addition, the effects of acetonitrile and ethanol on viscosity were observed. Viscosity was measured as a function of temperature using a capillary viscometer. Viscosity decreased with increasing temperature as expected. The viscosity of tributyltetradecylphosphonium chloride ranged from 729 mPa*s at 42.7 °C to 400 mPa*s at 51.8 °C. Tributylmethylphosphonium bis(trifluoromethylsulfonyl)imide has a viscosity that ranges from 52.27 mPa*s at 42.7 °C to 30.62 mPa*s at 55.7 °C. Furthermore, two solvents were added to each ionic liquid at mole fractions ranging from 0.025 – 0.1 and the viscosity was measured at a constant temperature. The method of solvatochromism was used to determine polarity. Three betaine dyes, 4-nitroaniline, N,N'-diethyl-4-nitroaniline, and Reichardt's Dye, were utilized and the absorbance spectra were recorded at three temperatures for each dye. Analysis of the solvent effect on viscosity and polarity data is ongoing. The measured physical properties can be added to the database of knowledge about ionic liquids and may contribute to further development of applications.



Ghada Tafesh

Advisor: Deborah Austin

“The Relationship Between Oral Anticoagulant Apixaban and Fish Oil Supplementation in a Stroke-Prone Animal Model”

For decades, warfarin has been the cornerstone for anticoagulation and stroke therapy, with few alternatives and no other oral options. However, warfarin tops the list of drugs with extensive drug and dietary interactions, requiring extensive patient and provider education, as well as frequent monitoring and dose adjustment due to its narrow therapeutic window. Therefore, researchers have been intrigued by the concept of developing oral anticoagulants with few drug and dietary interactions, such as apixaban, a newly approved oral anti-factor Xa inhibitor. Factor Xa catalyzes the conversion of prothrombin to thrombin in order to form a blood clot. While to date few drug and dietary interactions have been reported for apixaban, it is still early in its development and clinical use cycle. This study investigated the interaction of apixaban with the commonly used dietary supplement fish oil (omega-3 polyunsaturated fatty acid) to determine the likelihood of a potential drug interaction. The study involved the spontaneously hypertensive stroke prone (SHRSP) rat model to determine the effect of apixaban (n=5), fish oil (n=5), apixaban and fish oil (n=7) in comparison to a control group (n=5). Prothrombin and factor Xa activity tests, along with blood pressure and weight measurements, were taken over a six-week period to determine interaction. Statistical significance between and within groups was determined by ANOVA. Results show that apixaban and fish oil have a negative relationship that may potentially cause complications associated with uncontrolled bleeding and stroke symptoms.



Amadea Clement

Advisor: Deborah Austin

“An Analysis of Histamine Overload and its Correlation to Diet & Daily Activity and Histamine Intolerance”

Histamine Intolerance (HIT) describes a non-immunologically mediated reaction caused by the intolerance to foods with high histamine levels and/or the inability to metabolize ingested histamine. Symptoms mimic allergic reactions and multiple other diseases making it difficult to diagnose causing misinterpretation. Estimates show that 1-8% of the population is affected by HIT. Research states nearly 80% of those experiencing HIT are women around age 40. Current research suggests other factors including stress, sleep amounts and exercise type can lead to an increase in histamine levels. This study focuses on daily diet, stress, exercise, and sleep patterns of residential college students over a two week period. The study includes six phases: Phase I – Information Session, Phase II – Diet & Daily Activity Log and Urine Sample, Phase III – Data Analysis and Feedback, Phase IV – Diet & Daily Activity Log and Urine Sample and Phase V and VI – Creatinine and ELISA. Volunteers participated in Phases I, II and IV of the study. In the urine samples histamine converts to N-methyl histamine, a major product of histamine metabolism that has a longer half-life than that of histamine. A Creatinine Colorimetric Assay reacts equally to both making it an excellent choice for measuring histamine levels in urine. Creatinine is a chemical waste by-product of normal muscle contractions and is eliminated in urine at a normal rate. This provides a dilution correction that is necessary to determine the histamine/creatinine ratio. To detect and quantify the amount of histamine in urine a Histamine Sandwich ELISA was used. The effect of the different variables on histamine will be determined by a Generalized Linear Model. A t-test will be used to compare histamine values from both weeks. Results of this study can be used to further understand histamine intolerance and its correlation to diet and daily activity.



**Dianna
Clemens-Heim**

Advisor: Julie Raulli

**“Claiming Ground in Pennsylvania: Women
Farmers Performing Feminism and Engaging
Activism”**

Nearly 40 years has passed since the United States Department of Agriculture first began to enumerate women as farmer operators. By the 2012 Census, this empowering act of validation resulted in a 193% increase in the number of Pennsylvania’s women farm operators. Yet they still operate fewer than 15% of all farms and struggle for legitimacy and equal treatment. With this minority representation in a male-dominated field, women encounter traditional mindsets about who a farmer is, land use, and their performance of roles both on and off the farm. By gleaning the narratives of 14 Pennsylvania women farmers, several of whom are trailblazers in state agriculture, this thesis examines lived experiences in the light of the feminist movement from which women farmers benefitted and, perhaps unconsciously, perpetuated. The study’s findings suggest their defiance of hegemonic norms, gendered situations and embedded roles are indicative of agency and foster activism. Farm credit access, Marcellus shale drilling, land conservation and management, food safety, and genetically modified organisms (GMOs) are all topical, vitally important issues in which a women farmer can strive to influence farm-related legislation and policy. With the study participants’ words, the research reveals what challenges they face when they seek to bring about social or political change on local, regional, and national levels. This thesis demonstrates that activism is a vital and valuable pursuit for women farmers-their participation will contribute to agriculture’s future in Pennsylvania.



Julia Barra & Shannon McKenzie

Advisor: Paula Kellinger

“Rico” and “Fix You”

This new work exemplifies two different styles of dance, my goal being to explore and showcase a variety of dance styles and interests. One piece is lyrical and contemporary (*Fix You*), while the other is jazz and hip-hop (*Rico*). In creating this work, I collaborated with my dance partner Shannon McKenzie, who dances in both duets, and contributed to conceptualization of elements in both works. We realized that in our first piece (*Rico*, fall 2105), we wanted to go “outside the box.” Most of the work I make is modern, so I wanted to get out of my comfort zone. The second piece was more collaborative, and we decided to make the work very emotional and personal (*Fix You*, spring 2016); we agreed on making a piece that we felt would affect our audience in some way. It may be worth mentioning that I came to Wilson specifically for the dance program, and immediately fell in love, and have taken dance courses every semester with Professor Kellinger.



BIO 270, Biology of Cancer

Advisors: Dana Harriger and Brad Engle

Join the students enrolled in Bio 270, Biology of Cancer, in an interactive forum and engage with them as you learn about various types of cancer. Posters will reflect a comprehensive presentation of knowledge that the students gathered as they researched specific forms of cancer. This student-centered, active learning experience incorporated the scientific poster presentation to foster learning of cancer biology. Students successfully mined primary literature to collect information ranging from epidemiological data on incidence and population trends, suspected correlations to exposures and heritable factors to current and trending diagnostic and therapeutic approaches. Students also include information gathered from their experiential component in which they contacted and interacted with a variety of experts on the front lines of cancer biology ranging from oncologists and researchers to foundations and support groups. An overlying goal of the poster project was to substantially enhance the depth of understanding of cancer biology as well as provide a forum for an educational opportunity to convey facts and concepts about cancer to the broader community.

Ahmed Alshahrani

“The Role of BRCA 1 and BRCA 2 in the Development of Breast Cancer”

Abby Burkhart

“Epithelial Ovarian Cancer”

Amadea Clement

“Malignant Colon Polyps in Tubulovillous Adenomas”

Cheyenne Cooke

“Mammary Cancer in Rats”

Amber Dibert

“Squamous Cell Carcinoma of the Bovine Eye”

Amanda Haase

“Mammary Cancer in Big Cats”

Anna Harutyunyan

“Hepatocellular Carcinoma”

Elizabeth Hauck

“Non-Hodgkin’s Lymphoma”

Erica Henry

“Esophageal Adenocarcinoma”

Ian Kuykendall

“Retinoblastoma”

Erin Stephan

“Epithelial Ovarian Carcinoma”

David Zuckerman

“Lung Cancer”



HSC 216, Human Anatomy and Physiology II

Advisor: Tonia Hess-Kling

GROUP ONE: Beverly Meyers, Gil Godlewski,
(top left) Jessica Anderson, Morgan Wonders

“Parkinson’s Disease and its Effects on the Nervous System”

For our HSC216 – Human Anatomy and Physiology II group project we have researched Lung Cancer and its effects on the Respiratory System. Lung cancer due to cigarette smoking is the leading cause of preventable death in the United States; and 90% of all lung cancers are caused by smoking. Whenever abnormal cells multiply rapidly, they cluster together and may form a tumor. This tumor has the ability to spread through lung tissue and potentially into surrounding tissues and structures. These cancerous cells destroy healthy lung tissue making it difficult to perform efficient and effective respiration, which is imperative to normal physiological function.

GROUP TWO: Morgan Bechtold, Jennifer Laman
(bottom right) Tracy Randall-Loose, Devynn Wiesniewski

“Lung Cancer and its Effects on the Respiratory System”

For our HSC216 – Human Anatomy and Physiology II group project we have researched Lung Cancer and its effects on the Respiratory System. Lung cancer due to cigarette smoking is the leading cause of preventable death in the United States; and 90% of all lung cancers are caused by smoking. Whenever abnormal cells multiply rapidly, they cluster together and may form a tumor. This tumor has the ability to spread through lung tissue and potentially into surrounding tissues and structures. These cancerous cells destroy healthy lung tissue making it difficult to perform efficient and effective respiration, which is imperative to normal physiological function.

GROUP THREE: Kristy Brammer, Nicole Cortez
(top right) Derrick Group, Kayelynn Pittman

“Cushing’s Disease”

The objective of this research is to educate and raise awareness in the academic community of Cushing’s disease, a disorder affecting the endocrine system. The research will provide a brief overview of the endocrine system and history of the disease to provide foundational knowledge of the topic. Information and data related to symptoms, disease characteristics, treatment, and social factors are presented to illuminate the impact of Cushing’s disease on human health and the importance of early diagnosis.

GROUP FOUR: Brittany Chandler, Cathy Rice,
(bottom left) Sierra Watson

“Congestive Heart Failure”

Our HSC 216 project will be on the cardiovascular system with an emphasis on Congestive Heart Failure. We will include information on the basic anatomy and physiology of the cardiovascular system as well as statistics, treatments, risk factors and stages.

Stage A of Congestive Heart Failure includes hypertension, diabetes and Coronary Artery Disease. Stage B involves a prior myocardial infarction and/or valve disease. Cardiomyopathy is also a contributing factor to CHF. Stage C involves shortness of breath and fatigue, and Stage D is Systolic heart failure.

According to a map published by the CDC, the incidence of heart failure is much higher in the southeastern United States and we thought it would be interesting to compare the mortality rates of Perry County, Mississippi to that of Perry County, Pennsylvania.



Samantha Chambers

Advisor: Steven Schmidt

“The Influences of Racial Identity on Wilson College Students: A Campus Climate Study”

The object of this study was to better understand how racial identity affects elements of self-esteem and academic confidence on a college campus. Previous research suggests that racial identity influences self-esteem and academic confidence through phenomena such as stereotype threat. Data was collected from 78 students from Wilson College. The participants completed a survey that included scales on racial identity, academic attitudes, and self-esteem. Demographics included race, gender, class standing, residential status, club involvement and sports involvement, and whether or not the participant was biracial. Due to the small sample size, racial categories were collapsed into Caucasian and non-Caucasian for analyses. A difference was discovered to be significant on the Private regard scale of racial identity between participants who identified Caucasian versus non-Caucasian, $t(76)=3.60$, $p=0.00056$. This suggests that non-Caucasian participants hold a higher internal view of being a member of their self-ascribed race than Caucasian participants. In addition, a difference was also discovered on the Centrality scale of racial identity between the Caucasian versus non-Caucasian participants, $t(76)=4.96$, $p=0.00$. This suggests that non-Caucasian participants view race as more a part of their identity than Caucasian participants. However, there was no significant difference or correlation between institutional attitudes and self-esteem of Caucasian participants compared to non-Caucasian participants.



BIO/CHM 398 DESIGN AND METHODS OF SCIENTIFIC RESEARCH

Advisors: Deborah Austin, Brad Engle, Dana Harriger,
Christine Proctor, Rebecca Smith

Gaser Ahmed

“The Effects of Low-Gliadin Wheat Products on Celiac Disease in NOD-DQ8 Mice Utilizing the tTG - IgA Test”

Celiac disease (CD) is an autoimmune disorder triggered by the ingestion of gliadin, a wheat gluten protein. The prevalence of celiac disease has increased significantly over the last 50 years. According to the most current estimations, from a 2012 study from Mayo Clinic researchers, 1% of adults in the U.S. have celiac disease. Although there are medications that can suppress the symptoms, there are no cures for CD and a strict gluten-free diet is the only resort. Gliadin is the causal agent that triggers the immune response. The down-regulation of gliadins in wheat by RNAi (interference) provides low gliadin products, which may offer several more options for CD patients. In this study, investigations will be done to determine the effect of low-gliadin products on the progression of CD in intestinal cells and to determine if there is an intake threshold. The transgenic mouse model, NOD-DQ8, will be utilized because CD symptoms are expressed. Mice will be exposed to different amounts of low-gliadin products by oral gavage administration. Blood samples will be collected every two weeks from the tails and the tTG-IgA test will be performed on samples, which is an enzyme-linked immunosorbent assay (ELISA) test. Utilizing the animal model will provide more information about the safety of the consumption of the low-gliadin products, which may set the stage for application toward humans. Since gliadin has been silenced, it is expected to have no effects on the intestinal cells of mice. However, this fact must be confirmed before marketing these products.

Ahmed Alshahrani

“An Epidemiological Modeling Approach to Study the Correlation Between Camels and MERS-CoV Under Certain Factors”

Coronavirus generally is a virus that infects the upper respiratory track and causes an illness. Coronaviruses emerged in the 1960s in humans, and were categorized as alpha coronavirus 229E, NL63, and beta coronavirus OC43, HKU1, SARS Coronavirus (Severe Acute Respiratory Syndrome) and MERS (Middle Eastern Respiratory Syndrome). However, the recent threat of coronaviruses is MERS-CoV that emerged in Saudi Arabia in 2012. MERS infects the respiratory system causing fever, cough, and breathing difficulties. MERS-CoV has spread in 26 countries with more than 1493 confirmed cases, and 40-50% death rate, with 4-5 days incubation period, which makes it a serious global threat. While doctors and scientists are working to find a vaccine or a cure, the transmission of the virus is still ambiguous with potential aerosol and zoonotic transmission from dromedary camels. In order to study the mode of transmission and control the virus, an epidemiological modeling will be performed using the Profile Likelihood Method to predict whether a correlation is present between the cases that had a contact with dromedary camels or cases that did not have a contact with camels with regard to factors such as gender, age, chronic diseases, area, temperature, and humidity. The data will be collected from the database of organizations and hospitals in which the cases were registered. Then, the data will be entered in a modeling program to process it and draw graphs that would indicate the relationship.

Ann Bianca

“Inquiry-Based Learning’s Effects on Neurotypical & Non-Neurotypical Students’ Comprehension of Stoichiometry”

There is a growing need for secondary education chemistry teachers to teach stoichiometry from a different angle than in prior years, to reach a wider demographic of students, due to high school classrooms increasing the use of inclusion. In inclusion, students with special learning needs are taught in the same class as neurotypical students. Stoichiometry is a core building block in chemistry that many students struggle with, often due to the element of mathematics and critical thinking being combined. Stoichiometry is an algebraic relationship in which the amount of products and reactants in a chemical equation is determined. Inquiry-based learning, which is a method of learning where the student leads by doing hands-on activities and developing problem solving skills, helps with many of the common struggles students have with stoichiometry. The students work their way through the problem using critical thinking skills while being mentored by their teacher, resulting in enhanced comprehension of the material. This study will involve two separate groups of students; both groups will have neurotypical students and students with special learning needs. One group will be taught stoichiometry using an inquiry-based learning method, and the other group will be taught by a traditional learning method. The groups will then be given the same test at the end of the material about stoichiometry. I hypothesize that test scores of both neurotypical students and students with special learning needs will increase in the group using inquiry-based learning.

Megan Fangman

“Silybin on Reducing Inflammation in Lupus”

The aim of this research project is to study the effectiveness of a chemical compound, silybin, in reducing inflammation in an induced Systemic Lupus Erythematosus (SLE) mouse model. SLE is a chronic disease that causes pain and swelling mainly on the skin and joints but the kidneys, heart, and the brain can be affected. Categorized by arthritis, fever, fatigue and rashes, lupus flares can range from mild to serious. Treatment for SLE supports managing acute symptoms, minimizing flare-ups, and controlling day to day symptoms. The relative unknown etiology of pathogenesis limits treatments to immunosuppressants, which the treatment of silybin could accomplish the management of inflammation in patients and improve everyday interactions with no significant risk of adverse effects in prolonged use. Three groups of mice will be induced intraperitoneally with pristane to facilitate the development of SLE. Treatment groups consist of an orally administered calculated low and high dose sample of silybin compared to a human dose, and a control group to measure the statistical significance between groups over an estimated period of eight weeks. Blood samples collected will be analyzed to determine anti-inflammatory effects of silybin. The control group and silybin treated groups will have noticeable differences in treatment effectiveness. The difference between the low dose and high dose treatment groups will be significant enough to provide a basis of evidence for the efficacy of silybin as a viable anti-inflammatory agent.

Anna Harutyunyan

“Synthesis of Palladium (II) Azidothymidine and its Effects on Telomerase Expression in Human Hepatocellular Carcinoma Cells”

Cancer is the second leading cause of death in the United States. Hepatocellular carcinoma (HCC) is the fifth most common cancer and the third most common cause of cancer mortality. HCC is hard to treat because of early metastasis and progression, therefore developing and testing new anticancer agents that target HCC cells is critical. Several studies have shown that azidothymidine (AZT) as well as palladium complexes have antitumor activity. An organometallic complex of platinum AZT has been previously shown to be more effective in tumor suppression than pure AZT. It is logical to propose that if Pt is replaced by a chemically similar but more readily available metal, its antitumor effect should be retained. In this study, Palladium (II) AZT will be synthesized, and its effects will be tested on human HCC and normal hepatocyte cell lines. AZT and its derivatives are phosphorylated intracellularly and are integrated in the cell's DNA, which terminates the phosphate-sugar backbone, thus damaging the DNA. It was also observed that AZT is integrated into the regions of DNA (telomeres) that protect the DNA from oxidative damage. Pd(II)-AZT will be integrated into the telomeric regions of both cell lines. Since HCC cells will have active telomerase and telomere synthesis, Pd(II)-AZT will cause more damage to their DNA than that of the normal cells. The level of expression of any gene can be measured by the levels of its mRNA in the cell. The efficacy of Pd(II)AZT will be measured through isolation and quantification of the mRNA of the gene that codes for telomerase (TERT mRNA). In normal cells telomerase activity is suppressed. It is expected that less telomerase activity will be observed in Pd(II)AZT-treated cells of HCC cell line than in control cells.

Vanessa Lybarger

“Evaluation of Factors that Increase the Prevalence of Pathogenic *E. coli* in the Conococheague Creek”

Escherichia coli, bacteria naturally occurring in the intestinal tract of humans and animals, are often introduced into the environment and waterways through fecal material. Although most strains of *E. coli* are non-pathogenic, when present, pathogenic strains can inflict diarrhea as well as other symptoms, including death. Different types of environments affect the ability for *E. coli* to reach waterways. Once there, they infect humans through irrigation of food crops and those who visit streams for recreation. Monitoring streams for the amount and type of *E. coli* while also recoding surrounding land use is important for identifying factors that increase the risk of pathogenic *E. coli* in waterways. This study aims to identify what factors increase the contamination risk of pathogenic *E. coli* in the Conococheague creek and if *E. coli* stays below the normal threshold of 126 CFU/100 ml. Weekly visits to Conococheague creek will be conducted at five predetermined USDA research sites, each within different land uses. Water samples will be collected and membrane filtrated for colony isolation. Random colonies will be isolated to generate samples of pure strains. Then, PCR will be used to amplify genes present that produce toxins, followed by electrophoresis to identify bands that indicate pathogenic *E. coli*. Finally, regression analysis will determine which factors influence the presence of pathogenic *E. coli*. Knowledge of factors that increase the prevalence of pathogenic *E. coli* is important in prevention of human infections.

Regina Monn

“Evaluating the Influence of Lactic Acid Bacteria on Rheumatoid Arthritis Through Different Modes of Administration”

Rheumatoid Arthritis (RA) is a chronic inflammatory disorder causing chronic inflammation in the lining of the joints. This autoimmune disease erroneously attacks the body’s own tissues. Current treatments for RA focus on suppressing inflammation, but these methods weaken the body’s overall immune system. Current studies demonstrate an association between gut microbiota and more efficiently regulated immune responses. Lactic acid bacteria (LAB) are anaerobic bacteria that are commonly used in the production of fermented dairy products and have probiotic effects on digestive health. Introducing the LAB in vivo should inhibit the proliferation and activation of lymphocytes, therefore suppressing the intracellular signaling pathways causing the inflammation associated with RA. This study will provide a comparative analysis of the influence and efficacy in administering different forms of LAB to treat inflammatory responses associated with RA and determine its impact on the overall immune system. To do this, four sample groups of rats will have collagen-induced arthritis (CIA) introduced through the tail joint. Heat-killed LAB will be intraperitoneally injected and live LAB will be delivered orally and rectally. Blood will be drawn from each group, and two assays will evaluate the immune responses for suppressing the inflammation associated with RA and the effects on the body’s other immune responses. The goal is to achieve less invasive and more natural methods for the prevention and treatment of RA without disrupting other immune responses while determining the efficacy of differing modes of administration.

Tracy Dile

“Effects of Apiary Practices on Colony Collapse Disorder in the European Honey Bee, *Apis mellifera*”

Nearly 90% of all flowering species of plants need help from animal pollinators for reproduction. *Apis mellifera*, or the European honey bee, is the most utilized pollinator in commercial crop production. Brought to the United States in the 1600's, they are used to pollinate roughly 1/3 of the US food supply and are responsible for 80% of commercial crop pollination. Their estimated agricultural economic contribution via assisted fertilization worldwide is greater than \$200 billion annually. Without the service of honey bees, manual pollination by humans would be very costly, and have a detrimental economic impact to agriculture. Although annual losses of colonies are expected, honeybee populations are experiencing recent declining at alarming rates. Large populations of adult bees are disappearing, leaving behind stores of honey, brood, and most surprisingly, their queen. Named Colony Collapse Disorder in 2006, researchers have yet to postulate a cause for this phenomenon. The intention of this study is to gather data through a survey of apiaries, both commercial and smaller scale, about winter losses, honeybee illnesses, pesticide exposure, and beekeeping practices. The data from this study will be used to elucidate any correlations that may exist between keeper practices and CCD, a crucial first step in focusing future research investigating CCD.



**Adele Reinoehl, Mary Beth Miller,
Kaylie Smith**
Advisor: Christine Mayer

“The Fulton Farm at Wilson College”

Wilson College in Chambersburg is home to the Fulton Center for Sustainable Living and the Fulton Farm. Fulton Farm is an active producer in the community. It supplies vegetables to a 20 year-old, 125-member CSA, the Wilson College Dining Hall, the North Square Farmers’ Market in Chambersburg, and the campus market at Lenfest Hall.

Education is the keystone at Fulton Farm with farmers in residence participating in internships, and work-study jobs.

Fulton Farm is also home to the Robin Van En Center. This resource center is designed as a clearinghouse for information about Community Supported Agriculture (CSA) and is used world wide. This database of 1650 CSA farmers and a website filled with useful information helps bring communities and farmers together.



Danniele Fulmer

Advisor: Ed Wells

“The Rights of Nature: Pioneering Legal Rights for Ecosystems”

For decades, environmental ethicists have posed the suggestion that ecosystems should be treated with dignity in all respects, including legal platforms. The Community Environmental Legal Defense Fund (CELDF) has put these ethical ideas into practice in the form of the Rights of Nature Movement, which has gained traction both in communities across the United States and nations around world.

Current legal systems in the United States recognize non-living corporations and people within courts, while natural ecosystems lack the same type of recognition. Under law in the United States, ecosystems have been regarded as “property,” which has influenced the fundamental content of current environmental laws to allow degradation of nature without consequence. This legal framework has been mirrored across the world, leading to an international environmental catastrophe. The Rights of Nature movement seeks to dismantle these destructive trends by extending legal standing to the ecosystems that sustain all life on earth. The CELDF has assisted numerous communities in developing ordinances to uphold the interests of nature. Additionally, countries across the world have started to incorporate the Rights of Nature framework into their constitutions, thus furthering the long term goals of CELDF’s vision.

The goals of this research are not to persuade audiences one way or the other, but to inform of the potential benefits of the Rights of Nature, while also presenting the arguments against the framework.



Erin Bisceglia

Advisor: Ed Wells

“SWOT Analysis of Dairy Farms in Franklin County, PA”

This study will investigate environmental impacts of dairy operations in Franklin County, PA. This analysis will include studying environmental impacts (such as manure management). It will also consider economic impacts. The study will also include an examination of animal treatment. In particular, it will determine antibiotics, silage, and growth hormones that may be fed to cows. In sum, the study will look at the strengths, weaknesses, opportunities and threats that the dairy farmers identify. In addition to information supplied by dairy farmers, a literature review of best management practices will be completed. Finally, the study will compare what the farmers self-report to what the literature states. The study will end by recommending changes that dairy farmers may want to consider to their operations.



**Patricia Hall, Charles Meck,
Marissa Rankin, Morgan Shadle,
Cassandra Watkins**

Advisor: Dave True

“Following King to Selma”

Students will discuss what it was like to follow Martin Luther King, Jr. to Selma to study, serve, and live as part of a larger community, organization, and movement.





Jennifer Dodds

Advisor: Michael Cornelius

“Mythic”

Mythic is a Paranormal Suspense novel chronicling the life of a siren named Eva. She currently patrols the Mid-Atlantic region as hunter for the Network, a peacekeeping organization responsible for policing the worst mythics on the planet. When she receives a phone call that someone close to her, a young siren named Desi, has disappeared - *literally* - into thin air, she flies her plane straight into enemy territory to find out what happened. Eva soon learns that Desi is not the only mythic female who has gone missing, and she might have been involved an ancient ritual that could spell an end for the mythic species entirely. Along with Matt, a centaur shifter and fellow Network hunter, Eva must figure out what happened to Desi in enough time to stop an archaic mythic from destroying everything she has ever known.

Mythic explores the Paranormal Suspense genre from the perspective of a marginalized character. Historically, sirens have been associated with the “seductress” or the “prostitute,” relegated to the destructive female character trope because of their powerful song or allure. In *Mythic*, the main character is a siren but does not adhere to that archetypal gender stereotype. She is a warrior, typically responding to situations with violence and aggression. *Mythic* explores the ways in which the stereotypes of a traditionally marginalized character type, “the seductress,” can be inverted and utilized when placed into the position of the hero.



Krista Dewald

Advisor: Amanda McMenamin

“Empowerment of Migratory Students Within an Imperialistic Education System: A Project for Progress in ‘Learning Campus’”

This project explores the systematic cultural and linguistic imperialism, within the education system in the United States; and the effects that construct has on “Learning Campus”, a program that is meant to empower migrant students and families. The focus is researching the program’s pedagogical approach and interactions between teachers, families and students; to determine if this construct is perpetrated. The aim is to better understand the effectiveness of “Learning Campus” in empowering students and families, or if it is another oppressive construct within their immigrant experience. Data was collected through interviews with ten migrant parents, fifteen migrant students, and five tutors; additionally twenty surveys were completed by migrant students. The data shows that the program does perpetrate oppressive constructs in some aspects; while in other aspects it is empowering to the students and families.



Charlotte Flood
Advisor: Steven Schmidt

“Gender and Perceptions of Probation Officers”

Research demonstrates that gender matching in various kinds of interpersonal relationships impact one’s perception of the other person in that relationship or one’s perception of the relationship itself. Race matching impacts probationers’ perceptions of their officers, but there is a lack of focus on gender matching in this kind of relationship in past research. The current study explores the effect that the gender dynamic of the probationer-probation officer relationship has on probationers’ perceptions of their supervising officers. This study compared gender-matched (n=19) and non-gender-matched (n=18) groups’ perception of the probation officer. The independent variable, perception of probation officer, included 5 dimensions; fairness, clarity, competency, satisfactions, and helpfulness. The results revealed that there was no difference in perception of the officer’s clarity, competency, satisfaction with the officer, and helpfulness of the officer between the gender-matched group and the non-gender-matched group. However, there was a significant difference, $t(35)=1.8194, p<0.10$, in the perception of the officer’s fairness between the two groups. This finding is consistent with previous research of gender matching in the mediation relationship (Charkoudian & Wayne, 2010). Perceptions of probation officers do not appear to be completely consistent between gender-matched and non-gender matched groups. It appears that when probationers are not the same gender as their officer, there is the potential for probationers to feel that their officer treats them less fairly.



Katelyn Wingerd

Advisor: Amanda McMenamin

“Positioned in the Center of the Infinite: An Analysis of the Works of the Writer Jorge Luis Borges Through a Literary - Mathematical Lens”

The Argentinian writer, Jorge Luis Borges, is considered one of the greatest Hispanic writers of the twentieth century. Compiling a collection of more than 500 pages of short stories, essays, and poems, Borges has contributed to not only literature, but many disciplines, including politics, religious studies, sociology, psychology, the sciences, as well as mathematics. Through his use of well-known literary symbols and mathematical references, Borges connects two disciplines that, at first sight, appear to be very distinct. At the heart of the intersection of mathematics and literature in the Borgesian oeuvre is the infinite. In order to see the strong connection between the two disciplines and the power of the infinite, Borges encourages readers to examine his works through an infinitely mathematical-literary lens.

Through careful analysis of ten Borgesian works, including “Tlön, Uqbar, Orbis Tertius” and “La biblioteca de Babel,” and numerous secondary sources, this thesis examines the influence of infinity among numbers and their most basic properties, the role of infinity in time and space and the expanding universe, and finally, the figure of the infinite itself and its influence on Borges’ theories of translation. This literary analysis focuses on the intersection of mathematics and literature in Borges’ works in order to show the powerful and reciprocal relationship that exists between the two disciplines.

CONFRONTING CLIMATE CHANGE

Climate Change seems to be everywhere and nowhere. Every few weeks a major study seems to come out charting our changing climate, be it the warming oceans, the melting polar icecaps, or the number of super storms, etc. On the off weeks we hear news of some kind of association or some form of political action summoning us to join the fight to reduce carbon emissions. There is a great deal of activity, but as is often the case, the activity — for all its energy — has yet to rise to the necessary level. We need sustained global action to reduce our collective CO2 emissions. Indeed, those of us in the world's most wealthy nation have yet to reach a consensus on how to proceed. As a body politic, we remain divided and distanced from the fight. Given as much, Confronting Climate Change may seem an odd choice. We might as well have titled this blog Denying Climate Change.

This is our reality, and yet the reality of climate change is bigger, much bigger, than our politics. The reality is that today, now, humanity is confronting climate change as a contested idea, a reality, and a looming threat. This series is part of campus conversation about how climate change is changing human society and culture. It is an exploration into what it means to live in the shadow of an approaching apocalypse, in an age of superstorms, alarmed and in denial.



**Maria Silvia
Muylaert de Araujo**

**“Mitigation of Climate Change: Working Group
III Contribution to the IPCC Fifth Assessment
Report”**

GHG emissions accelerate despite reduction efforts. Most emission growth is CO₂ from fossil fuel combustion and industrial processes. Without more mitigation, global mean surface temperature might increase by 3.7° to 4.8°C over the 21st century. Delaying mitigation is estimated to increase the difficulty and narrow the options for limiting warming to 2°C.

Effective mitigation will not be achieved if individual agents advance their own interests independently. Issues of equity, justice, and fairness arise with respect to mitigation and adaptation. Climate policy may be informed by a consideration of a diverse array of risks and uncertainties, some of which are difficult to measure, notably events that are of low probability but which would have a significant impact if they occur.

Maria Silvia Muylaert de Araujo is member of the IPCC/Working Group III to the 5th Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) as Lead Author for Chapter 4 on “Sustainable Development and Equity”. Architect (UFRJ-Federal University of Rio de Janeiro). MSc in Urban and Regional Planning (IPPUR/UFRJ). Post-graduation at the Institute for Housing and Urban Development Studies, Rotterdam, the Netherlands. DSc in Energy and Environmental Planning (PPE/COPPE/UFRJ). Member of the Brazilian Forum on Climate Change. Member of the Collaborative Program of the Ethical Dimensions of Climate Change coordinated by Rock Ethics Institute – Penn State University.

