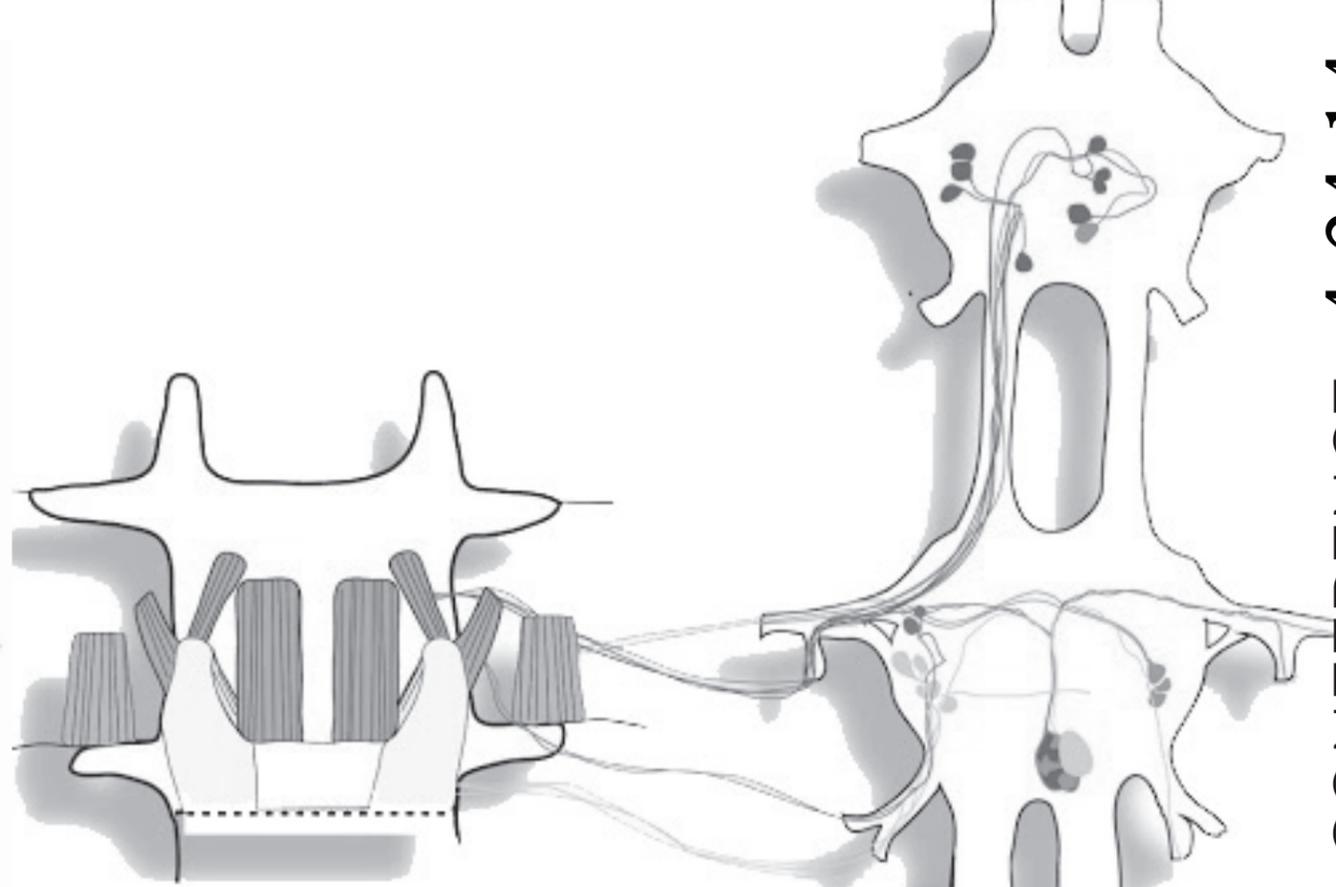
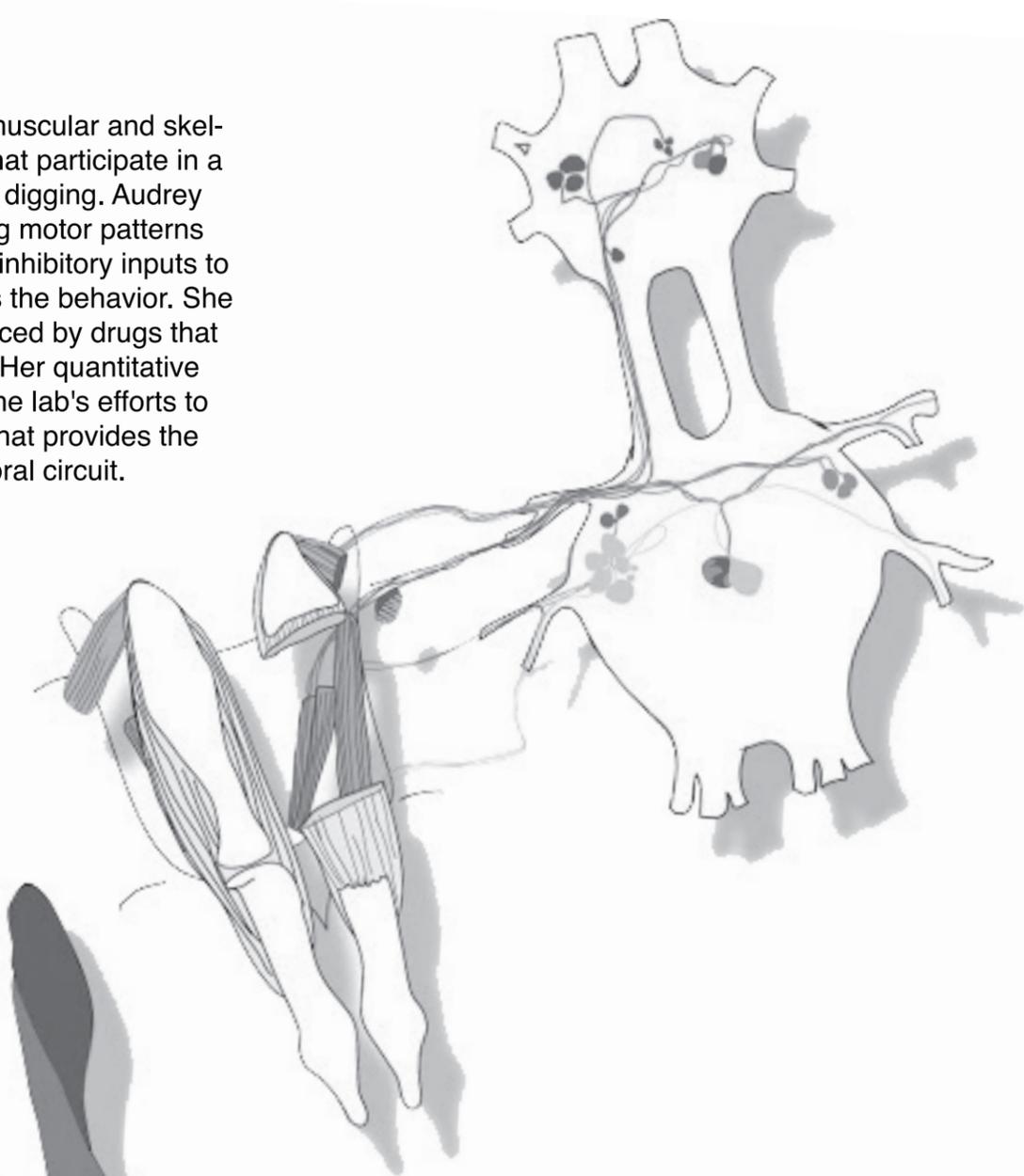
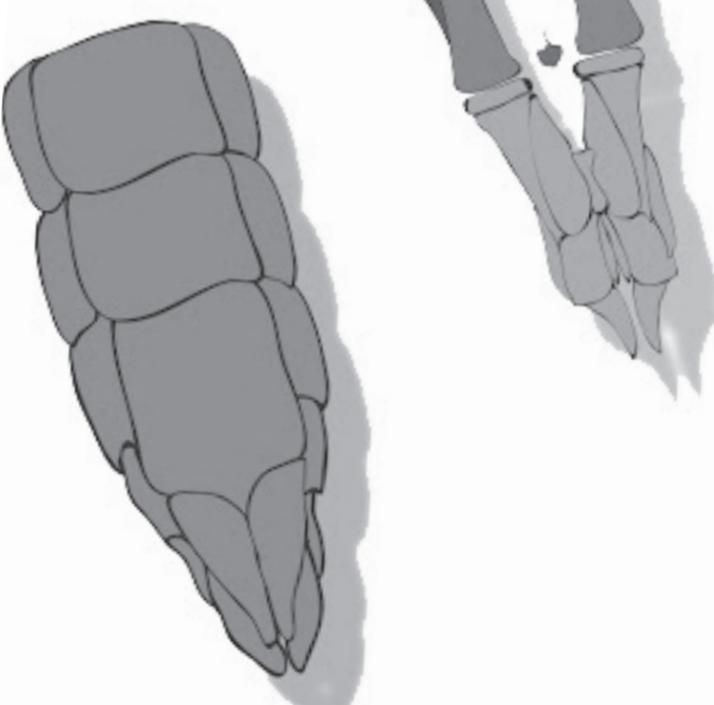


The cover images show neuromuscular and skeletal systems of grasshoppers that participate in a rhythmic behavior, oviposition digging. Audrey Osterbind is examining digging motor patterns induced by physically removing inhibitory inputs to the nervous system that controls the behavior. She is also examining patterns induced by drugs that antagonize inhibitory signals. Her quantitative comparison will contribute to the lab's efforts to identify the neurotransmitter that provides the inhibition to this behavioral circuit.



***"Comparison of Rhythmic Motor Pattern Induced in Two Different Ways".***

**Student:**  
Audrey Osterbind

**Advisor:**  
Karen Thompson



# AGNES SCOTT



## AGNES SCOTT COLLEGE

### 2014 **SPRING ANNUAL RESEARCH CONFERENCE**

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The Spring Annual Research Conference (SpARC) is held at Agnes Scott College each April to provide students and faculty with an opportunity to present their work to the campus community. As an interdisciplinary conference, SpARC fosters essential connections across academic disciplines and encourages an ongoing dialogue among the liberal arts and sciences. Much of the research presented at the conference stems from collaborations between students and faculty members through directed readings and independent studies. In addition to promoting the development of students' research, presentation and analytical skills, SpARC gives all those in the Agnes Scott community an occasion to learn about the latest research being conducted by their colleagues.

# Acknowledgements

## 2014 SpARC Committee

Philip Ojo and Qiao Solomon, Co-Chairs

*Special thanks to the following individuals and departments:*

**The Office of the Vice President for Academic Affairs:** Calvin Burgamy, Susan Dougherty, Gundolf Graml, Emily Gwynn, Drew Homa, Duke Miller, Tammy Roundy, Tami Stanko, Alix Valcin, Amy Whitworth

**Office of Facilities/Events Services**

**Agnes Scott Food Services**

**The Center for Writing and Speaking**

**Musical performances by ASC students:** Courtney Anderson, Sorena Campbell, Mingming Cui, Megan Do, Boxu Fan, Meghan Franklin, Lindsey Gomes, Zheng Liang, Yinying Luo, Leandra Masser, Ashley Orage, Hannah Plank, Briana Robinson, Ruoyuan Shen, Grace Vanness, Jiawen Wang  
Qiao Chen Solomon, Director of String Chamber Ensemble  
David D'Ambrosio, Director of Piano Duets & Chamber Wind Ensemble

Meghan Joyce '13 designed the 2014 SpARC cover, selecting provocative artwork (grasshoppers!) from the conference abstracts. Meghan graduated with a major in history and a minor in studio art in 2013, and is currently using her "year 5" experience to expand her graphic design portfolio and working as a substitute art teacher at a local afterschool program. She plans to pursue a career in graphic art.

## 2014 SCHEDULE OF EVENTS

- 9:00 – 10:10 SpARC Presentations, Bullock Science Center Classroom
- 10:10 – 10:50 SpARC Poster Presentations and Reception, Woolford B. Baker Atrium, Bullock Science Center
- 10:50 – 12 Noon SpARC Presentations, Bullock Science Center Classrooms
- 12 Noon-1:00 Dance Performance, Gaines Chapel, Presser Hall
- 12 Noon – 1:20 Scottie Math Bowl, Evans Hall, Terrace Level
- 1:30-3:55 SpARC Presentations, Bullock Science Center Classrooms

# MORNING SCHEDULE OF PRESENTATIONS



TIME	BSC G09	BSC 102W	BSC 103W	BSC 112W	BSC 209-A W	BSC 209-B W	BSC 210E	BSC 304E	BSC 308
9:00-9:20	AMANDA VINCENT SOCIOLOGY/ ANTHROPOLOGY	DANLI LAN POLITICAL SCIENCE	MELISSA HUTCHESON PHYSICS AND ASTRONOMY	NASTACIA PEREIRA, ET AL. PSYCHOLOGY	ASHLEY LAWRIE HISTORY	OLIVIA BELLO, ET AL. BIOLOGY	ASHA BOSTON FILM STUDIES	KATIE ROSE CRISCUOLO CREATIVE WRITING	LACEY WILSON FIRST YEAR SEMINAR
9:25-9:45	SADIA ALI SOCIOLOGY/ ANTHROPOLOGY	SHONTIECE EPPS POLITICAL SCIENCE	KIMBERLY LUONG PHYSICS AND ASTRONOMY	MICHELLE SHERMAN, ET AL. PSYCHOLOGY	KERRY AYERS-SMITH HISTORY	NATASHA BROWDER BIOLOGY	REBECCA BRAZEALE FILM STUDIES	KEELY LEWIS CREATIVE WRITING	MARIAH CAWTHORNE SPANISH
9:50-10:10	MORGAN BENDER SOCIOLOGY/ ANTHROPOLOGY		AMELIA ALLEN PHYSICS AND ASTRONOMY	BRITTANY WILLIAMS ET AL. PSYCHOLOGY	R. LARKIN TAYLOR-PARKER HISTORY	REBECCA CROSS NEUROSCIENCE	EDWINA GYAMFI FILM STUDIES	GABRIEL HALL ENGLISH	CAMDEN ESANCY SPANISH
10:10-10:50	<b>POSTER PRESENTATIONS AND RECEPTION, WOOLFORD B. BAKER ATRIUM, SCIENCE CENTER</b>								
10:50-11:10	BUNMI DESTINY DAVIS SOCIOLOGY/ ANTHROPOLOGY	ASIA JACKSON, ET AL. EDUCATION	MEGHAN FRANKLIN PHYSICS AND ASTRONOMY	REBECCA CROSS BIOLOGY	LINDSEY GOMES MUSIC	JASMINE FISHER, ET AL. NEUROSCIENCE	GABRIELLE SHEPARD ENGLISH LITERATURE		FIKELA HILL SPANISH
11:15-11:35	LAUREL GRANT SOCIOLOGY/ ANTHROPOLOGY	NEERAJA PANCHAPAKESAN, ET AL. EDUCATION	JUNJAR LUCIEN PHYSICS AND ASTRONOMY	KAELA SINGLETON, ET AL. PSYCHOLOGY	CARLISA JOHNSON MUSIC		PRECIOUS SIDWELL ENGLISH LITERATURE		VERONICA LEON SPANISH
11:40-12:00	WELLISANE KUNDI SOCIOLOGY/ ANTHROPOLOGY	ANNA RUPLE EDUCATION	ASHLEY MONSRUD PHYSICS AND ASTRONOMY	BOMI KIM, ET AL. PSYCHOLOGY	YINGYING LUO MUSIC	ALEXANDRA BROSIUS BIOLOGY	DIEU LINH NGUYEN ECONOMICS	SOFIA BARRERA ENGLISH LITERATURE	BERENICE LUNA SPANISH
12:00-1:20	<b>SCOTTIE MATH BOWL, EVANS HALL, TERRACE LEVEL PERFORMANCES BY AGNES SCOTT COLLEGE DANCE STUDENTS, GAINES CHAPEL, PRESSER HALL</b>								

# AFTERNOON SCHEDULE OF PRESENTATIONS



TIME	BSC G09	BSC 102W	BSC 103W	BSC 112W	BSC 209-A W	BSC 209-B W	BSC 210E	BSC 304E	BSC 308
1:30-1:50	<b>NHUT NGUYEN</b> SOCIOLOGY/ ANTHROPOLOGY	<b>KHADIJAH BROWN</b> GERMAN STUDIES	<b>DANLI LAN</b> ECONOMICS	<b>MAIJA HATTON</b> ENGLISH	<b>SHAN SHAN</b> ART HISTORY	<b>ALEXANDRA HOLLIDAY</b> HISTORY	<b>AMELIA ALLEN, ET AL.</b> THEME HOUSES		<b>CHRISTINA SCHIMBOECK</b> SPANISH
1:55-2:15	<b>JYNNAH RADFORD</b> SOCIOLOGY/ ANTHROPOLOGY	<b>ANDREA HARRIS</b> GERMAN STUDIES	<b>QUYNH LE</b> ECONOMICS	<b>EMILY REED</b> ENGLISH LITERATURE/ CREATIVE WRITING		<b>LOIS HAO</b> HISTORY			<b>LAURA SEGURA</b> SPANISH
2:20-2:40	<b>QUIANNA SMITH</b> SOCIOLOGY/ ANTHROPOLOGY	<b>ASHLEY ORAGE</b> GERMAN STUDIES		<b>MACEY KARR</b> FRENCH	<b>SOFIA BARRERA, ET AL.</b> CENTER FOR WRITING AND SPEAKING	<b>KAELA SINGLETON, ET AL.</b> NEUROSCIENCE	<b>ESTEFANIA PALACIO</b> ENGLISH	<b>JOY FUNMI AKENFENWA, ET AL.</b> RELIGIOUS STUDIES	<b>ELIZABETH ARRIAGA</b> SPANISH
2:45-3:05	<b>ABIGAIL SCANLON</b> SOCIOLOGY/ ANTHROPOLOGY	<b>MAIJA HATTON</b> FRENCH	<b>TIANYE AN</b> RELIGIOUS STUDIES	<b>AMARIS BRONNER, ET AL.</b> PSYCHOLOGY	<b>PHOEBE PERRY</b> ENGLISH LITERATURE AND CREATIVE WRITING	<b>LIGIA SELAGEA</b> NEUROSCIENCE	<b>SHAN SHAN</b> MATHEMATICS		<b>EMALINE LANEY, QUYNH LE, DIEU LINH NGUYEN</b> HUBERT SCHOLARS
3:10-3:30	<b>TRANG VO</b> SOCIOLOGY/ ANTHROPOLOGY	<b>JESSICA OWEN</b> FRENCH	<b>EMMA ROBERTS</b> RELIGIOUS STUDIES	<b>ASIA SYLVEST</b> PSYCHOLOGY	<b>KEBREHT WALKER</b> CREATIVE WRITING	<b>KAELA SINGLETON, ET AL.</b> NEUROSCIENCE	<b>YEHIMI CAMBRON</b> STUDIO ART	<b>RACHAEL SCOTT, ET AL.</b> MATHEMATICS	<b>SAMANTHA ALLEN, ET AL.</b> CHEMISTRY
3:35-3:55	<b>KORTIA WILLIAMS</b> SOCIOLOGY/ ANTHROPOLOGY	<b>EMILY RIVES</b> FRENCH	<b>QUIANNA SMITH</b> RELIGIOUS STUDIES			<b>LAURA SEGURA, ET AL.</b> NEUROSCIENCE	<b>CAROLINE IGRAINE BARKLEY</b> ENGLISH LITERATURE		<b>MELISSA EASLEY, ET AL.</b> CHEMISTRY

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## PRESENTATIONS 9:00-9:20

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BSC 209-B W

### **ALTERATIONS OF RECEPTOR LEVELS IN RETT SYNDROME**

**AUTHORS: OLIVIA BELLO AND PAMELA GUINN**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

Rett Syndrome (RTT) is a postnatal neurological disorder affecting one in every 10,000-15,000 female births. RTT is caused by a mutation on the X-linked gene, *MECP2*. *MECP2* encodes for the methyl-CpG-binding protein 2, MeCP2, which is expressed throughout the body. In RTT patients there is an observed decrease in brain-derived neurotrophic factor (BDNF) and Nerve Growth Factor (NGF). BDNF influences synaptic plasticity in rats,  $\beta$ -amyloid-induced apoptotic death and neuroinflammation in the hippocampus. BDNF binds and activates the TrkB receptor. NGF is important for growth and survival of neurons and binds to receptor p75. We are interested in determining the protein levels of both TrkB and p75 receptors in the hippocampus, by monitoring the presence of these receptors, it allows us to better understand their role in RTT.

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BSC 210E

### **THE DINNER TABLE DOCUMENTARY**

**AUTHOR: ASHA BOSTON**

**ADVISER: PROFESSOR WILLIE TOLLIVER, JR.**

An Essence short film contest gave me the idea to create a documentary about Black women being multidimensional. I began doing some research on the contents of quality programming and became really inspired by the creators of Sesame Street. I was amazed to learn that they created it simply by taking the addictive qualities of children's programming and making it positive and educational. For my project I decided to take the addictive qualities of reality television and make it positive. The documentary is entitled "The Dinner Table" as a nudge to the idea portrayed in reality shows that we as women, black women especially cannot sit down and have dinner together. The film starts at the dinner table and the conversation there serves as a narrative while short monologues (to mimic confessionals) are shown along with footage of young black millennial women sharing their stories of success, mentorship and inspiration.

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BSC 304E

### **ENGLISH CREATIVE WRITING**

**AUTHOR: KATIE ROSE CRISCUOLO**

**ADVISER: PROFESSOR ESTHER LEE**

This creative writing project follows the rich epistolary tradition prominent in English literature. It is comprised of a collection of poems and short stories written as letters. The writer and recipient change with each work, creating a varied narrative with common themes. Threaded into the works are ideas of human phases and transitions, miscommunication in relationships, reconciling past and present selves, and the importance of expression. Some of the pieces are hand-written and photocopied, while others are typed. For the presentation, three to five of the works will be chosen and read aloud after a brief introduction of the project in general.

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## **SIMULATING CERENKOV PRODUCTION FROM RADIOACTIVE DECAYS**

**AUTHOR: MELISSA HUTCHESON**

**ADVISER: PROFESSOR NICOLE ACKERMAN**

Cerenkov light is produced when charged particles in a medium travel faster than light travels in that same medium. This characteristic blue glow is seen, for example, when certain radioactive nucleotides decay in a medium such as water. There are a number of a and b emitting nucleotides that may have potential for cancer therapy that also produce Cerenkov radiation. In this case, there is potential for using Cerenkov radiation in nuclear medicine through Cerenkov Luminescence Imaging (CLI). The work of this research focuses on simulating the production of Cerenkov photons using different radioactive isotopes. Using a program called Geant4, simulations are run and then analyzed to model the Cerenkov light produced from the decay of various radioactive sources. Additional studies will also be done to investigate the Cerenkov production as a function of geometry; for example, how the volume of surrounding water affects the amount of Cerenkov light produced.

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## **RETHINK THE LEGAL CONNOTATION AND CONSEQUENCE OF EQUAL PAYMENT IN WORKFORCE: DEADLOCK AND POSSIBILITY TO PROMOTE GENDER EQUALITY THROUGH LEGAL REFORM IN THE U.S.**

**AUTHOR: DANLI LAN**

**ADVISER: PROFESSOR GUS COCHRAN**

This presentation concentrates on studying whether legal reform on equal payment is a way to promote gender equality and enhance political democracy in the U.S. The purpose for this study is to know if we can achieve democracy through pushing social equality by using the legal system to alternate economic distribution in the form of equal payment. The presentation contains three parts: first, discuss the nature of legal structure and influence of law and court ruling on shaping the social institutions in the U.S., to understand the role of law in the real world gender scenario; second, based on the previous analysis, the presentation considers whether law is the solution to enhance gender status by resolving the issues of equal payment and in doing so improve American democracy; as well as on what condition will legal reform work? In the end, the presentation proposes potential methods that were rarely addressed by previous scholars on how to use law as a tool on the issue of economic payment to make America more equal and democratic.

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## **THE ENGLAND THEY KNEW: CARIBBEAN ABOLITIONISM AND THE TRANSFORMATION OF ENGLISH SOCIETY, 1770S TO 1838**

**AUTHOR: ASHLEY LAWRIE**

**ADVISERS: PROFESSORS MARY CAIN AND YAEL MANES**

Quite often in the scholarship of slavery, historians have considered the impact on the colonized, with a far less recognition of the silent revolution that is the cultural impact on the colonizer. Slavery and its long lasting effects not only shaped Caribbean culture, but also profoundly impacted England's self-perception and the shaping of its own national identity. Central to this presentation is an understanding of why the British would dissolve a system that accrued the bulk of its wealth. At a time when the English perceived themselves at the apex of civilization, the nature of slavery began to simultaneously challenge the nation's moral framework. The humanitarian *and* economic appeals of the British abolitionist movement during the 1770s to 1838 transformed England, thereby reflecting an

evolution in the nation's socio-cultural self-perception. The focus of this work is therefore to understand not how slavery impacted the oppressed, but rather the oppressor's understanding of self.

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BSC 112W

### **THE ROLE OF PARENTAL REJECTION IN TRAIT ANXIETY AND INTERPERSONAL RELATIONSHIPS**

**AUTHORS: NASTACIA PEREIRA AND LEXI PULICE-FARROW**

**ADVISER: PROFESSOR CARRIE BROWN**

The purpose of this study was to explore the relationship between parental rejection, trait anxiety, and interpersonal relationships. One-hundred-thirty-two adults ( $M_{age} = 29.30$ ,  $SD = 10.21$ , 86.4% female) completed an online questionnaire that included measures of perceived paternal and maternal acceptance-rejection, interpersonal relationship anxiety, trait anxiety, and demographic questions that included information on individuals who cohabit. The results indicate that cohabiters perceive marginally more paternal rejection than non-cohabiters. Similarly, there is a stronger positive relationship between paternal rejection and trait anxiety for cohabiters. Further, it was found that maternal and paternal rejection have an indirect effect, via trait anxiety, on interpersonal relationship anxiety. The findings of the present study contribute to the limited research on the relationship between parental rejection, trait anxiety, and interpersonal relationships.

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BSC G09

### **INTERACTION WITH AND BETWEEN CAPTIVE WESTERN LOWLAND GORILLA INFANTS IN A FAMILY**

**AUTHOR: AMANDA VINCENT**

**ADVISERS: PROFESSORS DOUG FALEN AND LOCK ROGERS**

This project examines the interactions with and between infants in the Western Lowland Gorilla (*Gorilla gorilla gorilla*) family group at Zoo Atlanta. It attempts to answer questions regarding: (1) the relationship between age and sex classifications, and interactions with the infants, (2) how interactions differ between infants, and between infants and adults, and (3) what types of interactions with the infants are most common. The project uses focal and scan sampling methods, as well as a project specific behavioral ethogram in order to collect data. This study addresses a specific demographic in a context, interactions with captive Western Lowland gorilla infants, that has not been widely researched to date. Qualitative observations note that the infants engage in a variety of play behaviors and are all reaching or currently in distinct stages of infant development.

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BSC 308

### **WOMEN ON THE VERGE OF A DOUBLE DISASTER: AESTHETIC AND SYMBOLIC SIMILARITIES BETWEEN PEDRO ALMODÓVAR AND ANDY WARHOL**

**AUTHOR: LACEY WILSON**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

Spanish director Pedro Almodóvar lists Andy Warhol as one of his biggest influences. After becoming familiar with Warhol's art, it is quite easy to spot the similarities between the two, not only aesthetically, but symbolically as well. From his use of color, to his portrayal of the society he lives in, there is no doubt that Almodóvar takes a page from Warhol to create daring and provocative films. This presentation explores the meanings behind Warhol's paintings and films and compares them to that of Almodóvar's films.

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## PRESENTATIONS 9:25-9:45

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BSC G09

### **DAQAN CALES: THE EFFECT OF LIFE IN DIASPORA ON SOMALI KINSHIP IDEALS**

**AUTHOR: SADIA ALI**

**ADVISER: PROFESSOR DOUG FALEN**

Daqan Cales, or the concept of Somali Americans being re-taught or "returned" to Somali culture, is essential to the revival and longevity of Somali culture in Diaspora. It has been shown that years of life in Diaspora cause cultures to adapt to their new homelands or their status of being a culture in Diaspora. This presentation is on research done in the Somali population of Atlanta and how the kinship ideals of their respective cultures have been affected by life in Diaspora. By utilizing surveys and interviews to incorporate a triangulation in data, the research found that Somali Kinship ideals in the Somali population of Atlanta have not become obsolete but have instead adapted all of the Somali subcultural practices to create the Somali American identity. This research can lend further insight into immigrant studies with a specific concentration on immigrant cultures that have a complex and intricate kinship practice.

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BSC 209-A W

### **HERE IS TO THE GOOD TIMES AND THE NOT SO GOOD TIMES - MIAMI IN THE 1920S**

**AUTHOR: KERRY AYERS-SMITH**

**ADVISER: PROFESSOR MARY CAIN**

This presentation examines Miami during the 1920s, following the city through the housing boom in the early part of the decade and ending with the aftermath of the devastating Hurricane of 1926. During the 1920's, many new residents flocked to Miami, and construction companies realized the profits of building new homes fast. As a result, buyers were caught off guard when the Hurricane struck; hundreds of people died and the damage totaled over \$1 million dollars. Due to the fact that the Miami economy was largely based on tourist dollars, most of the city's political figures did all that they could to minimize negative press about the disaster, including refusing aid from the Red Cross. Ultimately, this project shows that these combined factors caused the Hurricane of 1926 to be a man-made disaster as well as a natural one and thus, its effects were harsher had man not changed Miami.

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BSC 210E

### **CATHOLICISM IN ANIME**

**AUTHOR: REBECCA BRAZEALE**

**ADVISER: DR. WILLIE TOLLIVER, JR.**

This presentation analyses the role of Catholicism in four popular anime titles: Trigun, Hellsing, Trinity Blood, and Blue Exorcist. The analysis will show how these anime present their Catholic characters. I will then compare and contrast the different representations.

**CHARACTERIZATION OF THE SEIZURE PHENOTYPES AND SURVIVAL FOR THE D1866Y SCN1A MOUSE MODEL OF GENETIC EPILEPSY WITH FEBRILE SEIZURES PLUS (GEFS+)**

**AUTHOR: NATASHA BROWDER**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

Mutations in the *SCN1A* gene, which encodes the voltage-gated sodium channel Na<sub>v</sub>1.1, have been linked to a variety of epilepsy conditions including genetic epilepsy with febrile seizures plus (GEFS+). The D1866Y (DY) *SCN1A* GEFS+ mutation was first identified in an Italian family displaying different epilepsy phenotypes. Due to the location of the DY mutation in the cytoplasmic loop, it is hypothesized that the mutation interferes with  $\alpha$  and  $\beta$  subunit interaction and alters the biophysical properties of the channel. To better understand the effects of the mutation on seizure thresholds, mice containing the human GEFS+ DY mutation were evaluated for their susceptibility to various seizure induction paradigms. It was determined that heterozygous mutants have an increased susceptibility to induced seizures, while homozygous mutants exhibited premature lethality. Our findings suggest that the DY mutation alters the function of the Na<sub>v</sub>1.1 channel, decreases seizure thresholds and increases the mortality of DY mutants.

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BSC 308

**CASTA PAINTINGS IN COLONIA AND MODERN-DAY LATIN AMERICA**

**AUTHOR: MARIAH CAWTHORNE**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

"Casta" paintings showed different racial and gender relations within colonial Latin America. I will connect these representations to contemporary art of Latin America that portrays similar themes. My questions are, (1) what can the study of various paintings teach us about different themes of colonialism? and (2) how can that be applied to the present? My research includes material from scholarly journals, books, radio broadcasts and my own observations of the art. Finally, I will address how symbolism of the eighteenth century colonial (i.e., pre-independence) paintings can provide an understanding of race, gender and other themes both during colonization and today. Presented in Spanish.

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BSC 102W

**THOSE LEFT BEHIND: INEFFICIENCIES IN EDUCATION POLICY TO REACH THE YOUNG IMPOVERISHED**

**AUTHOR: SHONTIECE EPPS**

**ADVISER: PROFESSOR VANCE GRAY**

The purpose of my research is to expose the barriers to learning for children within the lower socio-economic class often masked as uneducated due to race. I propose that cross cutting cleavages including intersections with race are all inadequate in substantiating the claim that race is THE factor in a child's early development in education. Instead, the leading factor driving early childhood development in the education realm is a child's socio-economic background. This will be proven by numerous rankings and statistics establishing consistency in educational development in early childhood amongst children in the lowest socio-economic class despite other cross cutting factors. My research will help to expose the culprit in childhood illiteracy and other educational developmental disabilities linked to poverty and help to address the issue.

**\*RESULTS NOT TYPICAL**

**AUTHOR: KEELY LEWIS**

**ADVISER: PROFESSOR ESTHER LEE**

This reading is a culmination of an independent study in creative nonfiction. The project's topics include gender expression, sexuality, the significance of names and labels, the problem with having a body, childhood faith, and self-help advice from famous philosophers.

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**CERENKOV RADIATION DETECTION USING CCDs**

**AUTHOR: KIMBERLY LUONG**

**ADVISER: PROFESSOR NICOLE ACKERMAN**

Cerenkov Luminescence Imaging (CLI) is a relatively new imaging modality in the field of medicine, which has many possible uses relating to the treatment of cancer. Cerenkov Radiation (CR) is the direct result of a charged particle moving faster than light through a medium, similar to the shockwave that occurs when an object travels faster than the speed of sound. The emitted radiation peaks in the visible blue range, but the spectrum is continuous, allowing CR to be imaged using relatively simple digital cameras that utilize charge-coupled device (CCD) sensors. Currently, using a specialized electron multiplying CCD, this research focuses on proof-of-concept imaging of CR in low light conditions which involves accurately determining the background noise present in the research environment. After establishing background noise, we will begin calibration of light sources to use as baseline measurements for comparison.

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**COULD YOUR BELIEF SYSTEM BE RELATED TO YOUR PARENTS' ACCEPTANCE OF YOU?**

**AUTHORS: MICHELLE SHERMAN AND LAURA ORCEL**

**ADVISER: PROFESSOR CARRIE BROWN**

The purpose of this study was to investigate the relationship between parental rejection and having a belief system. The researchers hypothesized that having a belief system would lead to less parental rejection. A secondary data set was utilized in gathering 132 participants ( $M_{age} = 29.30, SD = 10.21$ ). The results revealed that participants did not differ on parental rejection whether they had a belief system or not. However, people with no belief system had a marginally significant higher score on the paternal rejection hostility/aggression subscale than those with a belief system. Further, participants with no belief system had a higher paternal rejection score on the hostility/aggression subscale than participants with monotheistic affiliation. In addition, participants with no belief system scored higher on the maternal rejection coldness subscale than participants with a monotheistic affiliation. Overall, this study suggests that having no belief system is related to more parental rejection.

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## PRESENTATIONS 9:50-10:10

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BSC 103W

### **A STUDY OF QUANTUM ENCRYPTION METHODS**

**AUTHOR: AMELIA ALLEN**

**ADVISER: PROFESSOR AMY LOVELL**

Data encryption is used to protect secret information from third parties, from war secrets to credit card information to e-mails. Classical encryption methods use the computational difficulty of solving a problem to protect information while quantum encryption methods relies on properties of quantum mechanics to protect information. Popular classical encryption methods are secure enough to protect information on computers built using today's technology. However, top security organizations are working on building quantum computers that could solve computationally difficult problems very quickly and thus obtain information protected by classical encryption. The purpose of this study is to explore some strengths and weaknesses of quantum encryption methods and to compare them to those of classical encryption methods. This will be accomplished by a review of recent articles in quantum cryptography.

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BSC G09

### **POWER STRUGGLE BETWEEN BURMESE MIGRANTS**

**AUTHOR: MORGAN BENDER**

**ADVISER: PROFESSOR DOUG FALEN**

The lives of migrant people have been closely studied by both anthropologists and sociologists. My research uses a feminist perspective to examine the power struggle between Burmese migrant men and women. Do men feel inferior in this new city? Do women feel empowered to do things they could not do before? These are the types of questions I have asked my participants and have received interesting answers. The research I have gathered seems to be similar in the previous research done on African and Middle Eastern migrants while adding new understanding. As a result, my research will help the community better understand the struggles of Burmese migrants which could assist with the assimilation of the migrants as well as for the community to get to know its new residents.

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BSC 209-B W

### **THE ROLE OF SIGNALING CASCADES IN RETT SYNDROME**

**AUTHOR: REBECCA CROSS**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

Rett Syndrome (RTT) is a neurodegenerative disorder that primarily affects females and is classified under the Autism Spectrum. Children affected by this disease have difficulties with motor control and learning. This disease is caused by mutations on the *MECP2* gene, which codes for the transcriptional regulator methyl-CpG-binding protein 2 (MeCP2). One protein regulated by transcriptional brain-derived neurotrophic factor (BDNF) is key for normal neuronal functioning. BDNF activates MAPK cell signaling cascades to aid in normal neuronal formation and growth. In RTT, BDNF expression is reduced. MAPK and PhosphoMAPK are involved in signaling cascades that are vital for cell differentiation, cell growth, and neuronal function. So, we hypothesize that they may be impaired in RTT. The present study utilizes Western blotting to measure protein levels for MAPK and PhosphoMAPK to investigate the role of signaling cascades in RTT in MeCP2 deficient brain sections from mice.

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**FROM EMIGRANT TO ACTIVIST: THE IMPACT OF MIGRATION AND POLITICAL IDEOLOGY DURING AND AFTER THE SPANISH CIVIL WAR  
IN JOSEFINA ALDECOA**

**AUTHOR: CAMDEN ESANCY**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

In order to analyze the specific impact migration has on personal ideology, I will examine the characterization of leftist Spanish emigrants in the novels *Mujeres de Negro* and *La fuerza del destino* by Josefina Aldecoa. Specifically I wish to examine the impact of migration on views of human rights, and how this often leads to migrant involvement in political activism. Common causes of migration include lack of economic opportunities and the need for political refuge. These struggles are often rooted in the absence of human rights within a political system, so it is fitting that migrants are involved in activism to support economic, civil, and political rights. The novels are part of a trilogy set during and after the Spanish Civil War, and follow a mother and daughter in their transatlantic migrations between Spain and Mexico. Through Aldecoa's depiction of one Spanish family, the overwhelmingly complex phenomenon of migration is scaled down to the personal level, so it is not just understood through statistical data on economic standing or general political opinion. Moreover, the interweaving of themes of identity and personal relationships are examined, which are also strongly shaped by the migratory experience. Presented in Spanish.

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**BLACK EXPRESSIVE REALNESS: THE PRESENTATION OF BLACK MUSIC AND FASHION IN *PARIS IS BURNING***

**AUTHOR: EDWINA GYAMFI**

**ADVISER: PROFESSOR WILLIE TOLLIVER, JR.**

This presentation analyzes the various aspects of Black Expressive Culture, specifically the connections of music and fashion, in the notable documentary, *Paris Is Burning*. Historically placed in Harlem, New York, Black and Latino gay and transgender people developed communities surrounding their identities, manifested in the artistic showcases known as balls. *Paris Is Burning* highlights the ballroom trail blazers showcasing upcoming stars and renowned celebrities. Jennie Livingston revealed the intersectionality of race, class, and gender in the high fashion world crafted by the participants in the ballroom scene. Relying on sources such as *Signifyin(g)*, *Sanctifyin'*, and *Slam Dunking: A Reader in African American Expressive Culture* and *Skin Deep: Inside the World of Black Fashion Models*, I would correlate themes such as the call and response, African derived satire, and community formation with the core ideology of the famous members of *Paris Is Burning*.

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**TAKE ALL DEBRIS AND WASTE AWAY: A POETRY PRESENTATION**

**AUTHOR: GABRIEL HALL**

**ADVISER: PROFESSOR ESTHER LEE**

This presentation is a collection of poetic works regarding intersectional identities of race, gender and class. The talk presents work crafted in ENG 302: Poetry Workshop, and informed by personal experience interpreted through the lenses of such courses as Fiction Workshop, Global Awareness: Literary Ireland, and Women's' Studies.

**LONG SHADOWS IN MILLEDGEVILLE**

**AUTHOR: R. LARKIN TAYLOR-PARKER**

**ADVISER: PROFESSOR MARY CAIN**

This project explores Central State Hospital's exceptionality from 1860 to the early twentieth century, and, after that, its normality amongst institutions of its kind. One of the largest and worst public mental hospitals of the era of mass-institutionalization is located in Milledgeville. It is massive, had a diverse patient population, and left an extensive paper trail. It has a more colorful history than the asylums of fiction. However, historians have neglected it. The hospital stopped working well late in the 1860s and never got back on track, but it was sincerely designed to protect vulnerable people. This two semester study looks into what happened, whether better decisions could likely have saved it, and what lessons the state might draw as it closes its large mental institutions.

**PARENTAL ACCEPTANCE-REJECTION THEORY: THE FATHER'S INFLUENCE AND FLUCTUATION OF ANXIETY LEVELS**

**AUTHORS: BRITTANY WILLIAMS AND JULIA TEARE**

**ADVISER: PROFESSOR CARRIE BROWN**

The intent of this study is to explore the links between anxiety and Parental Acceptance-Rejection Theory. It was hypothesized that interpersonal relationship anxiety, state anxiety, and trait anxiety will be higher for females who experienced more paternal rejection growing up than for females who experienced more maternal rejection growing up. Accessing a secondary data set collected via convenience and snowball sampling, 114 female participants ( $M$  age = 29.56,  $SD$  = 10.83) completed an online survey assessing their interpersonal relationship anxiety, state anxiety, trait anxiety and parental acceptance-rejection levels. The results indicated that females who reported experiencing higher levels of maternal rejection had higher interpersonal relationship anxiety, state anxiety, and trait anxiety than females who reported experiencing higher levels of paternal rejection, in contrast to the hypotheses. These findings show that maternal rejection can play a role in the anxiety levels that a female experiences as she grows up.

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**10:10-10:50**

**POSTERS, EXHIBITS AND REFRESHMENTS**  
**WOOLFORD B. BAKER ATRIUM, BULLOCK SCIENCE CENTER**

See poster abstracts beginning on page 35.

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## PRESENTATIONS 10:50-11:10

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BSC 112W

### **DEMOGRAPHIC AND ENVIRONMENTAL VARIABLES ASSOCIATED WITH COGNITIVE TEST PARTICIPATION OF MONKEYS IN LARGE SOCIAL GROUPS**

**AUTHOR: REBECCA CROSS**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

By studying animals in large social groups, we are able to evaluate associations between demographic or environmental variables and cognitive test participation. Monkeys are typically tested in laboratory settings, requiring them to be housed singly or in pairs. The Yerkes National Primate Research Center has a field station environment where monkeys live in large naturalistic social groups. They experience changing seasons, live within normal rhesus matrilineal hierarchies, reproduce, and care for their offspring. The Laboratory of Comparative Primate Cognition has established a cognitive testing apparatus that is freely available to a group of rhesus monkeys (*Macaca mulatta*) living at the Yerkes Field Station. All of the monkeys have implanted RFID chips, allowing us to individually track performance. We completed demographic analyses on data collected over four years. These results begin to provide a better understanding of how environmental factors and demographics affect cognitive test participation.

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BSC G09

### **MUSICAL INFLUENCE ON COLLEGE STUDENTS**

**AUTHOR: BUNMI DESTINY DAVIS**

**ADVISER: PROFESSOR DOUG FALEN**

A large body of research has suggested that the media has a heavy influence on consumers and that many people are influenced by what they hear on radio or see on television. This presentation is based on my research project which explored the connection between hearing certain messages in music and sexual behaviors/alcohol use through interview and survey data from college students. The effects of media on adults are understudied, particularly in college students. The research in this presentation will address this gap and identify student perceptions of the messages in music and how these messages might affect behaviors relating to sexual activity and alcohol use. My surveys have revealed that students believe that music has influence on other college students' behaviors, but not their own behaviors, while students who participated in interviews painted vivid pictures of how and why this music influences their own behaviors as well as their peers.

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## **A FORWARD GENETIC ANALYSIS OF GAD/UNC-25 EXPRESSION TO DETERMINE POSSIBLE REGULATORS OF GABAergic DIFFERENTIATION OF NEURONS**

**AUTHORS: JASMINE FISHER, RICHARD CAMPBELL, AND WALTER WILLIAM WALTHALL**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

The process of neural development is critical to the overall functionality of an organism. Disruptions of this process can result in a failure to develop a complete nervous system and cause neurodevelopmental disorders that affect the organism's coordination. This study examines the underlying mechanisms of GABAergic neuron development in free-living nematodes (*Caenorhabditis elegans*). The conserved enzyme, Glutamic acid decarboxylase (GAD), is required for GABAergic neurons in *C. elegans* and humans. In *C. elegans*, GAD is activated through the interaction between transcription factor UNC-30 and the *unc-25* gene. Our aim is to determine how UNC-30 is activated. One mutant that has been isolated shows disruption of behavioral assay for GABAergic function, which will lead us to our goal of determining how UNC-30 is activated.

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## **GREENHOUSE GAS INVENTORIES: UNDERSTANDING YOUR CARBON FOOTPRINT**

**AUTHOR: MEGHAN FRANKLIN**

**ADVISER: PROFESSOR AMY LOVELL**

Greenhouse gas inventories (GHG) are emissions inventories that track the amount of greenhouse gases emitted from an environment. Many greenhouse gas inventories are completed by using an online calculator such as the one provided by the Clean Air Cool Planet organization. The calculator is programmed to make the appropriate assumptions and estimations of the amount of carbon emissions in metric tons from an entity such as a college campus. The calculator includes three scopes that are categorized by the entity's GHG emissions that are generated directly and indirectly. For the 2012-2013 fiscal year, I will be completing the greenhouse gas inventory for Agnes Scott College. The information that I will need in order to complete the inventory will be given to me from campus surveys and various offices on campus such as the facilities office and the president's office. The gathered data will include our gas and electricity usage, waste disposal, and faculty/student travel. From completing the GHG inventory, the Office of Sustainability and I will be able to know where most of our emissions are coming from and find ways to reduce them. It is very important for industries and businesses to understand the amount of greenhouse gases they are emitting in the environment so they are able to reduce the amounts of harmful gases, ultimately slowing down the effects of climate change.

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## **MUSIC AND NATURE**

**AUTHOR: LINDSEY GOMES**

**ADVISER: PROFESSOR TRACEY LAIRD**

Music and nature interact in people's lives in multiple ways. The recent umbrella term ecomusicology covers a range of connections between nature, the environment, and music. Biomusic, for example, incorporates animal sounds, and can range in purpose from adding texture to addressing environmental issues. The latter instances become a means for ecocriticism, or a way to call attention to environmental issues like global warming, waste reduction, pollution reduction,

and habitat destruction. Protest songs, awareness-raising musical events, outdoor musical installations achieve similar ends, and can facilitate action towards addressing these issues.

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BSC 308

**BRIDGING THE GAP: A LOOK AT THE IMPACT OF PARENT-TEACHER RELATIONSHIPS ON CHILDREN OF HISPANIC IMMIGRANTS IN *STAND AND DELIVER***

**AUTHOR: FIKELA HILL**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

I will explore the impact of immigration on school children of immigrants in the United States using the 1988 film *Stand and Deliver*. *Stand and Deliver* tells the story of Jaime Escalante's time as a teacher at Garfield High School In Los Angeles. Escalante encourages at-risk Hispanic high-school students to learn calculus and raises the schools average standardized test scores. Research has found that children of immigrants often fall behind their native, English-speaking counterparts. I investigate how the influence of the teacher-parent relationship affects the progress of second-generation immigrants (children of immigrants) and demonstrate that increased community engagement would have further improved the Garfield students' performance. Presented in Spanish.

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BSC 102W

**REFUGEES, RESEARCH, AND REFLECTION: GAINING INSIGHT ON TEACHING ENGLISH LANGUAGE LEARNERS**

**AUTHORS: ASIA JACKSON, SAMARA FREEMAN, MACEY KARR, BRITTANY MCDORMAN, AND BRITTANY STARR**

**ADVISER: PROFESSOR TOBY EMERT**

Through this project, conducted as part of the Education 325 course, the researchers worked with students from the Global Village Project [a specific educational initiative for refugee girls ages 12-17] to construct an understanding of story structure and further English literacy skills. Though the GVP students were the intended focus of this project, the researchers also learned as they developed new teaching techniques, grew in understanding of problems facing the refugee community and education, and gained new interpersonal skills. Through a brief review of Teacher-Researcher Journals, secondary literature, and various classroom experiences, the researchers will share how this project helped them to gain insights both about themselves and how they learn.

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BSC 210E

**THEIR EYES WERE WATCHING DJANGO: THE MISREPRESENTATION OF BLACK WOMEN IN *DJANGO UNCHAINED***

**AUTHOR: GABRIELLE SHEPARD**

**ADVISER: PROFESSOR WILLIE TOLLIVER, JR.**

Audiences frequently praise Quentin Tarantino's film *Django Unchained* as a contemporary masterpiece that redefines film conventions in regards to race, history and film aesthetic. Black male viewers marvel, starry-eyed, as the film grants an authoritative depiction of Django as a liberated agent of strength and voice, yet the film disregards the voice of the black female. The black female struggle lies at the intersection of double oppression in modern day society through a combined system of racist and sexist conventions. The film addresses racism as Django's primary issue while the three central black female characters are voiceless, passive and subjugated to oppressive forces. My paper will not only interrogate the misrepresentation of these black female characters in the film, but it will also explore how this film functions in our culture. *Django Unchained*, although brilliant in its cinematic execution, brings forth a discussion of the misrepresentations of the black

female in the contemporary film industry. The film empowers black masculinity; however, the film fails to acknowledge a liberated African American female presence. My paper will lay the foundation and my confrontation with the issues surrounding race and gender in the film. Further, I will proceed with my argument and analysis of the film as I deconstruct it through a black feminist lens. I will reference film criticism as well as culture criticisms from black feminist and black studies scholarship. I will negotiate the two fields in order to confront the portrayal of black women in the film and how it serves as a microcosm for today's society and its issues surrounding gender and race. We cannot divorce the film from its social constructions and my paper analyzes that relationship.

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## PRESENTATIONS 11:15-11:35

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BSC G09

### **EDUCATION AND OCCUPATIONAL CHOICES AND THE GENDER WAGE GAP**

**AUTHOR: LAUREL GRANT**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation reports on whether Agnes Scott students' occupational and educational choices are influenced by gender bias or by expected gender discrimination. Contrary to the literature on the subject, my research indicates that discrimination and expected discrimination do not have a major influence on Agnes Scott students' educational and occupational choices. Additionally, students feel that attending an all women's college has given them confidence and attention that they would not have received at a co-ed college. This data demonstrates that an all women's college instills confidence in their students and a potential for women to choose a male-dominated career. It also suggests that more comparative research should be done to identify what effect a co-ed vs. single sex education has on women's occupational and educational choices.

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BSC 209-A W

### **THE POWER OF MUSIC DURING THE CIVIL RIGHTS MOVEMENT**

**AUTHOR: CARLISA JOHNSON**

**ADVISER: PROFESSOR TRACEY LAIRD**

The Civil Rights Movement used music to create bonds between protesters, and to articulate the non-violent outlook that contrasted with the Black Power movement. Because the Civil Rights Movement was grounded in religion, boundaries between sacred and secular expression were fluid. Spirituals were well-known by large groups of people, especially in the South, and were easy to use in protest. A spiritual like "We Shall Overcome" bridged sacred and secular contexts. As the Civil Rights Movement gained more momentum and attention, folk, funk, and other popular music artists introduced the messages and beliefs of the Civil Rights Movement to a broader audience.

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## MEXICAN-AMERICAN CHILDREN AND BICULTURALISM IN LITERATURE

**AUTHOR: VERONICA LEON**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

My presentation will focus on three literary works by Mexican-American female writers: "Real Women Have Curves" by Josefina Lopez, "Shattering the Myth: Plays by Hispanic Women by Denise Chavez", and "Woman Hollering Creek" by Sandra Cisneros. I will examine how children of parents of Mexican descent, though born themselves in the United States, continually experience the impact of their parents' migration. My analysis will explore the difficulties these children face during the process of acculturation. I will couple information imparted by these literary works with my own experiences as the daughter of Mexican immigrants to develop a better understanding of the effects of navigating the divide between two cultures. I will also analyze the source of conflicts that often arise between Mexican immigrants and their children due to their children's bicultural identities. Presented in Spanish.

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## QUANTUM DYNAMICS OF A REPLICA OF THE BRISTOL CHAOTIC PENDULUM

**AUTHOR: JUNIAR LUCIEN**

**ADVISER: PROFESSOR AMY LOVELL**

Objects that are larger than a molecule and smaller than a planet fit the models set forth in classical mechanics. For those models, *normal* temperature is anywhere close to room temperature, while *normal* speed is anything significantly less than the speed of light. It is only when the system being observed begins to violate these parameters that quantum factors come into play. More importantly, as the conditions approach *normal*, the quantum mechanical model approaches the classical model. Consequently, classical chaos that lies in wait in our world must also exist in quantum mechanics. Physicists and Mathematicians have addressed the topic by elaborating a variety of models. The pendulum at St Mary Redcliffe Church in Bristol, United Kingdom, has been an additional treat for physicists and mathematicians because of its chaotic motion. The unique feature of this pendulum is that it is driven by nothing but a flow of water, which sets it apart from a traditional pendulum. Under the reasonable assumption that tangible results relate to its motion, a replica of the Bristol chaotic water-driven pendulum is constructed and an experimental study of the motion of such pendulum is conducted with the objective of experimentally testing the ability of quantum mechanics to describe classically chaotic systems. I anticipate constructing a model of the pendulum using MATLAB and comparing it to the experimental model. My intentions during SpARC are to share my results with the Agnes Scott community.

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## DIGITAL STORYTELLING WITH MIDDLE SCHOOL REFUGEE GIRLS

**AUTHORS: NEERAJA PANCHAPAKESAN, FIKELA HILL, ALBERTHA SABREE, DILDORA SHARIPOVA, AND PATIENCE SHEPARD**

**ADVISER: PROFESSOR TINA PIPPIN**

Students in EDU 325: Primary Research in Educational Settings conducted a teacher action research project, which focuses on classroom instruction. This project involved teaching refugee girls from the Global Village Project how to use Windows Movie Maker to create a digital short of a fictionalized, personal story. The purpose of the project was to teach technological and English written and oral skills and gather data about the students' experiences. Researchers witnessed

increased confidence as the girls worked to improve their written skills through journaling, oral skills through telling stories, and technological skills through digital story making.

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BSC 210E

### **SCANDALOUS: AFRICAN AMERICAN FEMALE IMAGES IN TELEVISION**

**AUTHOR: PRECIOUS SIDWELL**

**ADVISER: PROFESSOR WILLIE TOLLIVER, JR.**

The advancement of black women in television and media in general has been a slow moving transition that is just beginning to yield results. Black women are just starting to slowly make their way onto major network television shows; but at what cost? ABC's *Scandal* is receiving much praise for having a black woman as a lead in primetime television; but we need to really take a look at who she is and how she is portrayed. BET's *Being Mary Jane* is another show with a very similar plotline that has gained so much buzz that an "I Am Mary Jane" movement has been created to allow viewers to identify with the main character. While these shows are progressive in some areas, they regress in others. Through a feminist lens, I will look at other black actresses who carried lead roles on major network television channels as the standard of what a progressive black woman is.

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BSC 112W

### **SELF-GROOM AND RESTING BEHAVIOR: THE EFFECTS OF WEATHER ON RED KANGAROOS**

**AUTHORS: KAELA SINGLETON AND BONNIE PERDUE**

**ADVISER: PROFESSOR BONNIE PERDUE**

Recently the role of zoos and their obligation to the welfare of animals has become a growing field of research within the scientific community. This research specifically aims to better identify and understand the influences of welfare on animals in captivity through various measures, as well as clearly define what aspects create the best quality of life for each species. However, just as people value certain topics of research as more critical than others, the same can be said for zoo welfare research within certain species, giving priority to non-human primates. This study focused on the red kangaroo (*Macropus rufus*) a species for which very little research has been done to investigate its adaptation to the zoo. Most current research concerning these animals observes them in their natural habitat and neglects to closely examine the welfare of the red kangaroo within zoos. The present study analyzed a small facet of the red kangaroo's welfare by examining two of its most essential elements of life, resting behavior and self grooming behavior as it responds to changes in temperature. Specifically this study tested the following three hypotheses concerning the effects of weather on red kangaroos: (1) is there a positive correlation between resting behavior and temperature? (2) is there a positive correlation between self groom behavior and temperature? (3) does self groom behavior decrease in temperatures above 65°F?

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## PRESENTATIONS 11:40-12:00

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BSC 304E

### **PEDRO INFANTE & BODIED RESISTANCE: CREATING MEXICAN/AMERICAN IDENTITY IN DENISE CHAVEZ' LOVING PEDRO INFANTE**

**AUTHOR: SOFIA BARRERA**

**ADVISER: PROFESSOR NICOLE STAMANT**

In Denise Chávez' novel *Loving Pedro Infante* (2001), the characters engage with the image of movie star Pedro Infante through his films as an embodiment of the border between Mexico and the United States. As part of a larger body of work, this presentation utilizes Julia Kristeva's theory of abjection in order to analyze how the community within the novel is faced with cultural exclusion and incorporation in the communal space of El Colón movie theater through a Pedro Infante movie. This presentation seeks to explain how this moment of cultural abjection either isolates or incorporates the characters within a transnational Mexican/American identity in addition to how abjection legitimizes this identity within an oppressive social structure through popular culture, sex, and food.

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BSC 209-B W

### **ELUCIDATION OF THE RELATIONSHIP BETWEEN SIZE AND LOCATION OF TANK BROMELIAD SPECIES ON FICUS INSIPIDA AND LUEHEA SPECIOSA IN A PANAMANIAN WET TROPICAL FOREST**

**AUTHORS: ALEXANDRA BROSIUS**

**ADVISER: PROFESSOR LOCK ROGERS**

Epiphyte species constitute approximately 25% of lowland tropical forest plant species (Kricher 1997). Tank bromeliads are known to be present in trees of Panamanian wet tropical forests, and constitute a significant portion of epiphytic biomass. The goal of this project is to establish whether or not there is a relationship between size of tank bromeliads and location on host tree. I predict that larger tank bromeliads will be located closer to the trunk than smaller tank bromeliads. In addition, I will attempt to determine whether there is a size difference between the bromeliads in *Ficus insipida* and *Luehea speciosa*.

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BSC 112W

### **THE RELATIONSHIP BETWEEN SELF-DISCLOSURE AND REJECTION SENSITIVITY**

**AUTHORS: BOMI KIM, JESSICA BOTTS, AND MARIEL HERRERA**

**ADVISER: PROFESSOR EILEEN COOLEY**

Self-disclosure can be defined as the intentional act of revealing personal information. Previous research found that individuals who put importance on self-disclosure had higher relational satisfaction. Rejection sensitivity is fearful or anxious expectations about potential rejection by others. Higher rejection sensitivity may have detrimental effects on interpersonal functioning and relationships. Both self-disclosure and rejection sensitivity are related to interpersonal functioning; however, there is limited research linking these two characteristics. We will recruit participants enrolled in Introductory Psychology courses at Agnes Scott College. Participants will be administered the Rejection Sensitivity Questionnaire (Feldman & Downey, 1994) and the Jourard Self-Disclosure Questionnaire (Jourard, 1958) via Survey Monkey. We hypothesize that people who report higher sensitivity to rejection will have lower scores for self-disclosure. Counselors might encourage people with high rejection sensitivity to increase personal sharing within close relationships to enhance relationship satisfaction.

**COLORISM AT AGNES: DOES IT EXIST?**

**AUTHOR: WELLISANE KUNDI**

**ADVISER: PROFESSOR DOUG FALEN**

The purpose of this presentation is to show the findings that I have gathered on colorism on Agnes Scott's Campus. Before I conducted my research, I did a literature review on the history of colorism and how aspects such as gender and the media have an influence on how colorism is perceived. I took these aspects into consideration when I started conducting interviews and sent out surveys to various students on campus. My findings show that students at Agnes Scott do not give the subject of colorism much thought and that it does not seem to affect their self-esteem. This presentation may help students learn more about the issue of colorism and encourage students to reflect on the role of skin color in our society.

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**THE UNTOLD STORIES OF EMIGRATION**

**AUTHOR: BERENICE LUNA**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

This presentation examines the emigration experience through documentary films and the impact it has brought upon the land, people and culture. As migrants leave their homeland of Mexico and enter the workforce and culture of the United States, there is a subgroup with an unspoken story. As the migrants leave, the families left behind go through a different experience, one now portrayed through the documentary films, *The Other Side of Immigration* (2009) and *Los Que Se Quedan* (2008). Dealing with the causes of migration, I will analyze how it will impact the generations to come. The experience of such drastic uprooting has changed the social dynamics of Mexican culture at the cost of family structure. Presented in Spanish.

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**MINIMUM WAGES AND TEENAGE CHILDBEARING IN THE UNITED STATES**

**AUTHOR: DIEU LINH NGUYEN**

**ADVISER: PROFESSOR MADELINE ZAVODNY**

For decades, research on the impact of the minimum wage on teenagers in the United States has focused mostly on teenage employment. Recent studies have started to explore how an increase in the minimum wage may affect teenagers' school-work transition, drunk driving behaviors, and crime rates. To further examine the minimum wage's impact on teenagers, this study investigates the relationship between minimum wages and teen birth rates using state-level annual data from 1984 to 2004 and OLS regression models. Controlling for demographic characteristics of the 15 – 19 year old female population, family factors, community factors, and policy factors, the result indicates that a 10% increase in the real minimum wage is associated with a 2% decrease in the teen birth rate. This finding also enriches the current literature on teenage childbearing, which has never explicitly considered the minimum wage as a determinant of teen birth rates.

**THE CHANGING TREND IN AMERICAN ORGAN PERFORMANCE PRACTICE**

**AUTHOR: YINGYING LUO**

**ADVISER: PROFESSOR TRACEY LAIRD**

American organ building took multiple directions in the 20th century. In the early part of the century, American organs were more suited to play orchestral transcriptions. Slightly later, some builders attempted to design organs capable of playing a large range of repertoire with the resulting musical performances unaligned with composers' intentions in terms of registration and tone. After World War II, a group of American organists studied on historical instruments in Europe and returned home with a deeper sense for European precedents and an enthusiasm for a more scholarly, historically informed approach. After the 1980s, changing audiences also affected directions for American organ performance.

**RUBEN'S TUBE**

**AUTHOR: ASHLEY MONSRUD**

**ADVISER: PROFESSOR AMY LOVELL**

For my experiment I plan to build and utilize a Ruben's Tube. A Ruben's Tube is a physics apparatus that shows acoustic standing waves by flame coming out of a tube. This demonstration will allow me to show the graphical relationship between sound waves and sound pressure. The flame will display the waves that will vary with the music that is playing.

**WHY DO AGNES WOMEN LOVE MATH?**

**AUTHOR: ANNA RUPLE**

**ADVISER: PROFESSOR LESLEY COIA**

Girls in middle and high school are less interested in the STEM subjects, specifically math, than elementary girls. I tried to figure out why. I interviewed ten Agnes Scott mathematics majors of different ages and concentrations and asked them how we could improve our education system to help encourage young girls to continue their interest in math. Using what I learned from these ten women, I discuss ways we can change our education system and our culture to stop the flow of negativity towards mathematics.

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**PRESENTATIONS 1:30-1:50**

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**EMPOWERMENT THROUGH SOCIAL MEDIA**

**AUTHORS: AMELIA ALLEN, SAMANTHA ALLEN, MORGAN BRILES, REBECCA CROSS, RACHELLE PIERRE, EMILY REED, AND ZENYTH SHEPPARD**

**ADVISER: PROFESSOR ELEANOR MORRIS**

The Empowerment through Social Media theme house was created in order to educate others around campus as to how to generate positive interactions through social media and to expand our own knowledge of using social media to network professionally. To facilitate this, each house member picked a social media website to focus on throughout the year so we could have an "expert" in the house for most of the major social media outlets. Our most creative event thus far was #SpookyScotties: a room-decorating contest in which Agnes Scott students submitted pictures of their room through Instagram, Twitter, Facebook, or Google+ under the hashtag #SpookyScotties. Our house also held an informal tutorial for social media sites in general and maintained Social Media House Tumblr and Facebook pages, and participated in several community service activities.

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BSC 102W

### **PAEDAGOGISCHE METHODEN, KULTUR UND DER HOLOCAST: WAS FUNKTIONIERT?**

**AUTHOR: KHADIJAH BROWN**

**ADVISER: PROFESSOR GUNDOLF GRAML**

The Holocaust serves as one of the most significant moments in history and as a result, great responsibilities of remembrance through specific pedagogical methods arise. Such approaches should be utilized without repressing associated presence of grief and suffering, and should not create a glossing-over phenomenon created by exclusion or emphasis placed upon "symbols" of the Holocaust. The current exclusion is not only detrimental to the efforts in providing a holistic education but also undermines the necessity to view the historical and cultural nuances embedded in this dramatic portion of world history. Moreover, it is necessary to approach the teaching of the Holocaust with inclusion of details, both painful to accept and difficult to comprehend, through the cultural scaffold for which many continue to ignore in efforts to both eliminate chances of an event of this magnitude from occurring once more and teach the importance of learning from the past.

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BSC 112W

### **THE RESULTS ARE IN: YOU ARE THE FATHER. AND THE MOTHER. YOU'RE ALSO AN ALIEN. FEMINIST SCIENCE FICTION IN THE ROE V. WADE ERA**

**AUTHOR: MAIJA HATTON**

**ADVISER: PROFESSOR STEVE GUTHRIE**

Feminist Science Fiction, like all Science Fiction, engages in dialogue with the present-day world through scientific or futuristic means. In this project, I examine two prominent Feminist SciFi writers from the 1970s- James Tiptree Jr. and Octavia Butler- and their perceptions of the female body and pregnancy as filtered through SciFi, alongside the pro-choice commentary found in early editions of *Ms. Magazine*. Neither author is a mainstream Feminist; Tiptree came from a much earlier wave of Feminism, and Butler, as a black woman, faces intersectional oppression that is not addressed in *Ms*. Both writers engage in dialogue with the mainstream Feminism found in *Ms* through their stories, and by exploring this dialogue, we can understand the multifaceted experience of the fight for bodily autonomy during the second wave of Feminism.

**OUR NATION’S HOLOCAUST MUSEUM AND THE WOMEN OF THE HOLOCAUST**

**AUTHOR: ALEXANDRA HOLLIDAY**

**ADVISER: PROFESSOR KATHY KENNEDY**

The permanent exhibition of the United States Holocaust Memorial Museum, titled *The Holocaust*, has been visited by more than 36 million visitors since the museum’s opening in 1993. This presentation will examine one of the world’s premier Holocaust museums and from a perspective that has rarely been highlighted in scholarly study: the female experience. The past thirty years have seen the emergence and evolution of scholarly work addressing the gendered experience of the Holocaust. While this work has succeeded in uncovering a number of significant concepts previously not considered about women in the era of the Holocaust, it is useful and fascinating to examine how this is reflected in the most public and accessible source of Holocaust education.

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**IS MICROFINANCE A SOLUTION TO POVERTY?**

**AUTHOR: DANLI LAN**

**ADVISER: PROFESSOR MADELINE ZAVODNY**

This presentation demonstrates my understanding and analysis of microfinance—low interest rate loans to poor people—based on my Hubert Scholar Internship with Grameen Bank in Bangladesh. The presentation is organized into three parts. First, I introduce the microfinance and the structure of the loan project in Bangladesh. Second, I discuss problems with the structure of microfinance and scholarly critiques and analysis. Third, I evaluate potential policy reform choices and directions. This presentation hopes to generate discussion on the significance reforming microfinance policy and how should we better proceed in consideration of local culture, ethnic and politics.

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**HOMEWARD BOUND: CAMPUS RELATIONSHIPS OF COMMUTER STUDENTS**

**AUTHOR: NHUT NGUYEN**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation focuses on the formation of social relationships of commuter students on the Agnes Scott Campus. In light of differences in community and living locations between commuter and residential students, the research examines how commuter students form relationships with peers, professors, and the campus community. Based on interviews and a survey of Agnes Scott students, the data shows that because commuter students are not interacting with campus environments in the same way as residential students, they form social relationships in different ways, based on personal constraints such as time management, jobs, and other personal obligations. However, the main reason for their commuting revolves around finances, with many students choosing to commute in order to save money. With the increase in students commuting due to the current economic recession, this research demonstrates the importance for institutions to take a closer look at the unique situations of commuting populations.

**THE PARTHENON FRIEZE: A FUSION OF THE REAL AND THE IDEAL**

**AUTHOR: SHAN SHAN**

**ADVISER: PROFESSOR DONNA SADLER**

Historically, scholars believe that the Parthenon frieze represents the religious procession in honor of Athena that was part of the quadrennial Greater Panathenaic Festival, and the central scene depicts the reception of the sacred woven cloak of Athena as the climax of the procession. However, recent scholarship found this interpretation problematic because of certain unmatched items in the frieze, the lack of mythological inspiration standing out from the overall decorative program and the indifference of the gods in the central scene. An alternative interpretation is proposed here that the Parthenon frieze represents a fusion of the real and the ideal Panathenaic procession. The frieze is an episodic depiction of the march evolved from the preparation stage at the Dipylon gate to meeting the welcoming gods on the Acropolis and the epilogue after the reception of the cloak that frames the real procession in front of the Parthenon.

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BSC 308

**THE REPRESENTATION OF CUBAN WOMEN'S IDENTITY IN BEATRIZ RIVERA'S *PLAYING WITH LIGHT: A NOVEL***

**AUTHOR: CHRISTINA SCHIMBOECK**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

This research looks at the novel *Playing With Light: A Novel* by the Cuban-American author Beatriz Rivera and examines how the female Cuban characters' identity is represented in the novel. In order to include a picture of the wider scope of Rivera's works, this research also draws upon other primary sources including short stories in the volume *African Passions and other stories* by the same author. This focus on the identity of Cuban-American women in the United States emphasizes the strong impact migration has on the culture of the destination. The goal of this project is to discover how the identities of female Cubans evolve into something different as a consequence of migration and how this development is represented in literature. Presented in Spanish.

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**PRESENTATIONS 1:55-2:15**

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BSC 209-B W

**MODERNIZING WOMEN'S EDUCATION IN CHINA: THE 1897 CONFERENCE IN SHANGHAI**

**AUTHOR: LOIS (LU) HAO**

**ADVISERS: PROFESSORS SHU-CHIN WU AND KATHY KENNEDY**

The presentation will examine the major turning point in the evolution of Chinese women's education at the turn of the twentieth century. It is derived from the research on the 1897 Conference in Shanghai, which initiated the project of breaking the dominance of Western religious institutions for Chinese girls, and establishing schools with a similar operating structure but the purposes of raising social and political awareness and promoting Chinese national consciousness among the future generations. The research studies the preexisting social, cultural, and political circumstances that led to the conference, as well as its immediate and long-term effect. The secularization project was launched nationwide since 1898, and resulted in an exponential development in both enrollment and radicalism among young Chinese women in the times of revolution and student movements. By 1920, the legacy of the Shanghai Conference had heavily influenced the progress of women's education and activism in a modernizing China.

**SUSTAINABLE DEVELOPMENT AND INTEGRATION IN GERMAN MEDIA**

**AUTHOR: ANDREA HARRIS**

**ADVISER: PROFESSOR GUNDOLF GRAML**

The presentation will analyze popular German music lyrics and the artists behind them that sing about sustainable development and integration in Germany today. Six popular German songs are analyzed to reveal what it is that Germans want out of their government and the changes they hope to see in their society. In the short presentation we will look at what information the research reveals on these issues and look at what regulations and initiatives the government has implemented to satisfy its people. The presentation will be in German.

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**MUCH MORE THAN JUST TUITION: THE RISING COST OF A COLLEGE EDUCATION AND ADOLESCENT PREGNANCY**

**AUTHOR: QUYNH LE**

**ADVISER: PROFESSOR MADELINE ZAVODNY**

College tuition in the United States has been increasing faster than general inflation rate, creating burdens for families to afford to pay for their children's education. Studies have shown that college costs can impact young people's future expectation of schooling, change the opportunity cost to have children and thus influence their engagement in risky behaviors. This study uses state-level data from the College Board Annual Survey of Colleges, the Centers for Disease Control and Prevention, and Guttmacher Institute in the period 2005-2010 to investigate the relationship between education cost and pregnancy decision including childbearing and abortion among young women aged 15-24. Preliminary regression results indicate that college tuition and fees have a negative relationship with birth rate and positive relationship with abortion rate among women aged 20-24, but a small or less significant effect on the birth and abortion rate among teenagers aged 15-19.

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**AFRICAN-AMERICAN FEMALE DESIRE AND EXPECTATION FOR MARRIAGE**

**AUTHOR: JYNNAH RADFORD**

**ADVISER: PROFESSOR DOUG FALEN**

From 1950 to 1991 statistics show that married couples in the African American community dropped more than thirty percent, while at the same time the number of households headed by women without a father escalated (United States, 1993). This presentation explores this decline in the African American community by examining African American women's desires and expectations to marry. The goal of this presentation is to examine some of the contributing factors to marriage expectations, as learned through interviews and surveys of at least fifty African American students.

**FAIRY TALES FOR MODERN QUEERS**

**AUTHOR: EMILY REED**

**ADVISER: PROFESSOR CHARLOTTE ARTESE**

"Fairy Tales for Modern Queers" is a short story collection of fairy tale adaptations for a new generation of queer youth, focusing on positive representation of queer young adults in fiction and bringing a new perspective to a beloved tradition. Written for the fall 2013 senior seminar in Creative Writing, the first part of the collection is five short stories set in modern times and based on traditional fairy tales from the Brothers Grimm and Hans Christian Andersen, representing a broad range of identities among youth today. The second section of the project, the work of a current independent study, consists of several longer pieces which are original stories about queer youth written in the fairy tale tradition. This SpARC presentation will consist of a short explanation of the process taken when researching and writing the project, and the reading of an excerpt from an original story in the collection.

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**THE METAMORPHOSIS OF FEMALE IDENTITY IN MEXICAN MIGRATION TO THE UNITED STATES**

**AUTHOR: LAURA SEGURA**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

The metamorphosis of female identity is an unforeseen side effect of migration and can be analyzed in scholarly publications as well as through contemporary literature. In order to show the powerful impact of migration on the transformation of the female identity, fictional characterizations and real-life studies of Mexican women will be analyzed to highlight how migration has forced the female identity to be altered and thus support the view of the female Mexican immigrant as adaptable and resilient. Presented in Spanish.

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**PRESENTATIONS 2:20-2:40**

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**DIGITAL STORY TELLING PROJECT: SARAH, MOTHER OF NATIONS**

**AUTHORS: JOY FUNMI AKINFENWA AND SYDNEY BRITT**

**ADVISER: PROFESSOR ANNE STEWART**

This presentation examines the importance of Sarah, the wife of Abraham in the Hebrew Bible. Presenting research from the culture of her time and carefully examining many interpretations, this digital story visually recounts Sarah's journey to motherhood. Sarah, who is proclaimed by God as the "Mother of Nations" in Genesis, is the catalyst by which God establishes His covenant. In many different interpretations, Sarah is considered "a woman of virtue", and "the example of an upright wife". However, both her influence over her husband and her personal interaction with God shows her strength and presence within the household. This digital story incorporates video and audio to express an original interpretation of Sarah. As a connection to both the Christian and Jewish faiths, her role in expanding the lineage of Abraham is pivotal.

**THE VOICE OF IMMIGRANT CHILDREN: RIDING ‘LA BESTIA’ IN *WHICH WAY HOME***

**AUTHOR: ELIZABETH ARRIAGA**

**ADVISER: PROFESSOR MICHAEL SCHLIG**

This presentation examines the portrayal of immigration to the United States of Mexican and Central American children in the film *Which Way Home* (2009). Through examples of interviews within the documentary, I propose to analyze social, economic and health influences of the children who immigrate. The film provides a voice to those who ride freight trains through Mexico to Laredo Texas, including perspectives from children of Mexico, Honduras, Guatemala and El Salvador. The United States boasts one million immigrants under the age of eighteen as of 2010, and this figure continues to increase annually. The experience of immigrant children has begun to shape a presence in the media and the film industry, and by analyzing the perspectives of the interviewed children, I aim to present the transformational influences driving them to migrate. Presented in Spanish.

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**TUTORING STUDENTS IN THE STEM DISCIPLINES: A COLLABORATIVE EXPERIENCE**

**AUTHORS: SOFIA BARRERA AND MEIQING XIONG**

**ADVISER: PROFESSOR CHRISTINE COZZENS**

In most of the writing center work, students in the STEM (Science, Technology, Engineering, and Math) disciplines might be the least served population because of the nature of terminology-laden subject matter and prescribed forms in scientific discourse. In fact it presents a special need for writing centers to help improve effective communication in science. Focusing on Agnes Scott’s GEMS program (Generating Excellence in Math and Science), our center examines multiple ways to better serve students in STEM fields. Drawing on interviews, surveys, focus group conversations with faculty and students from the STEM departments and GEMS program and other research methods, we explore how the center can collaborate with the STEM departments, content tutoring centers, and students to help students become better writers and speakers in scientific discourse. Our presentation examines the motivation behind our research of extending tutors’ comfort zone by tutoring unfamiliar subjects and encouraging students of STEM to see the center as a good resource for them, explains our research methods with faculty and students, and presents a plan of action that includes adapting our tutoring strategies and collaborating with the STEM community.

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**L’ACADÉMIE FRANÇAISE: UPHOLDING THE PATRIARCHAL INSTITUTION**

**AUTHOR: MACEY KARR**

**ADVISER: PROFESSOR JULIA KNOWLTON**

This presentation examines The French Academy, “L’académie Française”, and argues that this institution upholds the historical patriarchal views held in French society, which can be seen by the lack of women represented in the Academy, as well as the denial of equal grammatical genders. The French Academy is an institution which was established in 1635 by Cardinal Richelieu to preserve and protect the original French language. The French Academy is composed of forty members who are elected for life, unless they are expelled from the academy for unacceptable behavior. Out of the 726 members that have been elected into L’académie Française only eight have been women, with the first woman being elected in 1980.

**COMING OF AGE IN HITLER'S SHADOW**

**AUTHOR: ASHLEY ORAGE**

**ADVISER: PROFESSOR BARBARA DRESCHER**

The Hitler Youth, or *Hitlerjugend*, was a paramilitary organization under the Nazi Party. It aimed to promote Nazism and its ideals to Germany's youth. The organization divided its young members by gender and age, each of which was led by adult members of the party. However, despite membership in the party being open to both boys and girls, it is the boys who had the higher membership and still receive most of the focus of Hitler Youth discussion today. This presentation will explore the often overlooked day-to-day lives of the girls in the Hitler Youth.

**MINA LOY, MODERNISM, AND MADONNAS**

**AUTHOR: ESTEFANIA PALACIO**

**ADVISER: PROFESSOR JIM DIEDRICK**

This presentation analyzes how poet Mina Loy critiques the privileging of objective voices in Modern poetry. In her poems "Aid of the Madonna" and "Parturition," Loy employs a subjective voice, and uses a first person point of view to render moments in motherhood. In doing this, Loy elevates women and particularly suffering women. My analyses will show how Loy's poetry rejects key elements of Modernism and embraces traditional female roles to valorize the role of motherhood—both in the literal sense of childbirth and as a metaphor for female creativity in the arts. In doing so, Loy is successful in creating a space for her own creative work, particularly poetry. And in combining feminism and spirituality she is then able to extend this space to other women artists, demonstrating her belief in the power and value of women poets.

**ENDOSOMES: THEIR POTENTIAL ROLE IN RETT SYNDROME**

**AUTHORS: KAELA SINGLETON AND JASMINE SPRAGGINS**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

The neurodevelopment disorder, Rett Syndrome (RTT), affects an estimated one in every 10,000 to 15,000 female live births each year. Nearly all cases of RTT are caused by a mutation in the methyl CpG binding protein 2 (*MECP2*) gene. Categorized as an autism spectrum disorder, RTT propagates distinct decrease in the development of grey matter in the central nervous system affecting learning and motor control specifically through dysregulation of BDNF and TrkB receptors. Recent work has focused on understanding the role of endosomal trafficking, specifically focusing on upstream targets of BDNF, a prominent neurotrophic factor essential for proper neuronal growth and function. By examining protein levels of endosomal markers, we will better understand endosomal trafficking in RTT. The present study will further define the role of these known endosomal regulators including, Rab11, EEA1, and Trf using immunoblotting of MeCP2 deficient mouse brain sections.

**COLLEGE AND BEYOND**

**AUTHOR: QUIANNA SMITH**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation examines the way mentoring and college access programs have impacted the college experience of Agnes Scott students. The researcher learned what types of support were felt to be most useful in promoting success at college, with data showing that students who received college access support in high school had a positive experience in college, but that continued relationships with their mentors during college provide additional and important support. The findings of this research are significant in that they assess the work of existing programs from the participant perspective and can aid in better serving future students pursuing higher education.

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**PRESENTATIONS 2:45-3:05**

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**BUDDHISM AND SCIENCE**

**AUTHOR: TIANYE AN**

**ADVISER: PROFESSOR ABRAHAM ZABLOCKI**

This presentation explores the relationship between Buddhism and science. One of the biggest differences between Buddhism and science is how they define reality. Science is based on observing the world and coming up with hypotheses, then conducting experiments to test those hypotheses. Since a slight amount of uncertainty is tolerable, we could argue that science is a limit of the truth. However, the historical Buddha pointed out that one could never attain the truth by simply observing the outside, because human beings could never reach an absolute objective point of view. However, Buddhists do not object to scientific research, because they believe that scientific results could in some points contribute to proving the Dharma's correctness especially in some highly developed scientific fields like physics.

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**THE EFFECT OF FACEBOOK ADDICTION ON EMPLOYEES**

**AUTHORS: AMARIS BRONNER, SPARKLE HODGE, AND JENNIFER HUGHES**

**ADVISER: PROFESSOR JENNIFER HUGHES**

The purpose of this study was to examine the effect of Facebook addiction on employees. Three hypotheses were proposed: Facebook users who are more addicted to Facebook will check Facebook more often, female Facebook users will check Facebook more often than men during work hours, and female Facebook users will be more likely to indicate a Facebook addiction. Participants were 168 women and 31 men, 51.7% Caucasian, and 23.95% African American. Participants who work at least 25 hours per week were qualified for the study. Participants completed an online survey about how many hours per week they work and how often they check Facebook at work. The survey included items from the Facebook Intrusion Questionnaire (Elphinston & Noller, 2011). The results indicated that those who are addicted to Facebook check Facebook more often at work. Therefore, the first hypothesis was supported. However, the last two hypotheses were not supported.

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## JULES VERNE: TECHNO-ORIENTALIST

**AUTHOR: MAIJA HATTON**

**ADVISER: PROFESSOR PHILIP OJO**

This is an investigation into the Techno-Orientalism ("a practice of ascribing, erasing, and/or disavowing relationships between technology and Asian peoples and subjects."(Niu 74)) found in two of Jules Verne's novels: The Steam House and Around the World in Eighty Days. Both books feature highly descriptive trips through India, showcasing Verne's Orientalist leanings through his surface-level fascination with the Indian culture and people. In the novels, technology in the form of transportation is used as a barrier between civilization, as represented by the French and British, and the "uncultured" Indians. Verne's characters find security in these structures, which are created by a "civilized" society. By elevating new methods of transport to the pinnacle of civilization in his novels, and denying the Indian characters access to this transportation, Verne creates techno-orientalist propaganda.

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## 2013 HUBERT SCHOLARS

**AUTHORS: EMALINE LANEY, QUYNH LE, AND DIEU LINH NGUYEN**

**ADVISER: PROFESSOR JENNIFER LUND**

The Hubert program supports students in conducting public service projects around the world. In summer 2013, Quynh Le interned at Bai Thuong organic farm, which started after a project funded by AusAID in Vietnam. Through guided readings, and conversations with farmers, staff, and organic consultants, she explored why organic foods are unpopular in local market despite its high demand for safe healthy foods. Dieu Linh Nguyen interned at Access to Capital for Entrepreneurs – a microfinance organization in Decatur. She helped design an entrepreneurship program focusing on empowering women to become more financially independent through business. She compared microfinance in the US and in developing countries. Emaline Laney interned at Harvard Medical School with an affiliated NGO, Partners In Health. She worked with Dr. Louise Ivers, researching projects correlated to Haiti. Her main project was the cost-analysis of an Oral Cholera Vaccination campaign implemented in Haiti (2012), mass vaccinating 50,000 people.

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## LIES I TOLD TODAY

**AUTHOR: PHOEBE PERRY**

**ADVISERS: PROFESSORS CHRISTINE COZZENS AND DUDLEY SANDERS**

Lies I Told Today is a one-woman performance written and performed by Phoebe Perry, Agnes Scott Creative Writing senior seminar participant. This piece explores lying and possession through characters and autobiographical material. The characters range in age, gender, and honesty. Weaving throughout is standup comedy and storytelling adding an autobiographical aspect. Lies I Told Today is a theatrical performance piece edited and revised through improvisation and performance. Presenting this piece at SpARC will mean Agnes Scott students and faculty can get exposure to an alternative method of peer editing--live performance! This performance can be altered to fit SpARC's time constraints and spaces available.

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## THE AGNES BUBBLE: QUEER PRESENTATION AT A SOUTHERN WOMEN'S COLLEGE

**AUTHOR: ABIGAIL SCANLON**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation explores the physical presentation of queer students at Agnes Scott College. Through surveys and interviews I studied the differences students felt in their presentation on campus, at home, and in the city of Atlanta/Decatur, GA. The feeling of safety in the intimate campus community, referred to as the "Agnes bubble," was a recurring theme among respondents. Though not all have changed how they present since coming out, the majority of those studied in both surveys and interviews felt more comfortable on campus than at home. Given the lack of scholarship on queer identity at women's colleges, this study provides important information on the factors related to the comfort level of queer students in a southern metropolitan area.

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## ONCOGENIC REGULATION OF C/EBP $\beta$ IN MALIGNANT GLIOMAS

**AUTHOR: LIGIA SELAGEA**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

Glioblastoma multiforme (GBM) is the most common and the most aggressive primary brain tumor. Despite advances in cancer therapeutics, the prognosis for GBM is still dismal, with less than 5% of patients surviving past the second year. CCAAT/enhancer-binding protein beta (C/EBP $\beta$ ) is a bZIP transcription factor that has been shown to regulate numerous genes involved in immune and inflammatory response, and has recently been determined to be a master transcriptional regulator, driving the mesenchymal phenotype of GBM. The most common genetic alterations observed in GBM are in the following genes: Epidermal Growth Factor Receptor (*EGFR*), Phosphatase and Tensin Homolog (*PTEN*) and Tumor Protein 53 (*p53*). CCAAT/enhancer-binding protein beta (C/EBP $\beta$ ) is a bZIP transcription factor that has been shown to regulate numerous genes involved in immune and inflammatory response, and has recently been determined to be a master transcriptional regulator, driving the mesenchymal phenotype of GBM. Utilizing established GBM cell lines, we determined the effect of these alterations on C/EBP $\beta$  gene expression levels using The Cancer Genome Atlas (TCGA) data, mRNA levels using qRT-PCR, protein levels and post-translational modifications using Western Blotting and immunofluorescence, as well as DNA binding capacity using Electrophoretic mobility shift assay (EMSA). The results indicate that the EGFR signaling pathway is an important modulator of C/EBP $\beta$  function, and suggests that through this pathway the proliferative and invasive capability of GBMs may be sustained.

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## EXTREMAL SETS OF VERTICES OF THE HYPERCUBE OVER GF(2)

**AUTHOR: SHAN SHAN**

**ADVISER: PROFESSOR DEZSO MIKLOS**

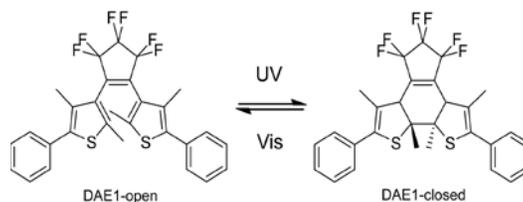
For an  $n$ -dimensional hypercube over GF(2), we investigate the maximum size of  $M_k$ , a subset of its weight  $k$  vertices such that certain configurations of the hypercube (vertices, edges, etc.) will not be in the span of  $M_k$ . In this talk, we focus on the two cases when the vertex  $(1, 0, \dots, 0)$  is not in  $\text{span}(M_k)$  and the vertex  $(1, 1, \dots, 1)$  is not in  $\text{span}(M_k)$ . In general, the two cases yield different results. We show the equivalence of the two cases for  $n=2k+1$  and  $n=2k-1$ . Furthermore, we provide a conjecture for the maximum size of  $M_k$  when  $(1, 1, \dots, 1)$  is not in  $\text{span}(M_k)$ .

## QUANTUM YIELDS FOR ONE- AND TWO-PHOTON CYCLOREVERSION OF A PHOTOCROMIC MOLECULAR SWITCH

AUTHORS: SAMANTHA ALLEN, AMANDA HOUK, AND CHRISTOPHER ELLES

ADVISER: PROFESSOR LEON VENABLE

We report quantum efficiencies for the ring-opening reaction of a diarylethene-based photochromic molecular switch (DAE1) following one- and two-photon excitation with a femtosecond pulsed laser. The reaction is pictured in Figure 1.



The compound, 1,2-bis(2,4-dimethyl-5-phenylthiophene-3-yl)perfluorocyclopentene, changes from a transparent open-ring isomer to a purple-colored closed-ring isomer upon exposure to visible light. We directly monitor the extent of conversion through the change in visible absorbance under irradiation with the pulsed laser. One-photon excitation at 375 nm, 500 nm, and 600 nm converts DAE1-closed to DAE1-open with quantum yields of  $\Phi_{1PA}^{375\text{nm}} = 1.7 \pm 0.4 \%$ ,  $\Phi_{1PA}^{500\text{nm}} = 1.9 \pm 0.2 \%$ , and  $\Phi_{1PA}^{600\text{nm}} = 1.4 \pm 0.2 \%$ , respectively. Excitation with two photons at 750 nm also induces the ring-opening reaction, with an estimated yield of  $\Phi_{2PA} = 2.6 \pm 0.9\%$ .

Figure 1: Cycloreversion and cyclization reactions of DAE1.

## MONUMENTOS

AUTHOR: YEHIMI CAMBRON

ADVISER: PROFESSOR NELL RUBY

This presentation outlines the process and results of the making of two short films about two undocumented immigrants. The two films are titled *Monumentos: Mi Padre* (Monuments: My Father) and *Monumentos: Mi Hermano* (Monuments: My Brother) and are no more than four minutes long each. The *Monumentos* films were created in the Fall of 2013 during ART 460 - Digital Processes Special Projects, an independent study guided by Professor Nell Ruby. The presentation will analyze the interview and filming process as well as the editing process and will conclude with a showing of the finalized films. In form of voice-overs, the films juxtapose the intimate testimonies of two undocumented immigrants with statements made by politicians and other concerned citizens - often criminalizing and condemning undocumented immigrants. This juxtaposition aims to expose a neglected aspect of the greatly politicized immigration debate - the humanity of undocumented immigrants.

**“HORLA”’S RACINES (ROOTS)**

**AUTHOR: JESSICA OWEN**

**ADVISER: PROFESSOR PHILIP OJO**

In Guy de Maupassant’s “Le Horla” or “L’ Horla,” the narrator is afflicted by a phantom. The novella and outside sources indicate that the phantom is a vampire, one who steals the life of another like a parasite (Maupassant 39). Perhaps this goes deeper than vampirism. The narrator could be a plant or a symbol for a basic form of life. Similar to a plant, he has “racines”(roots) and he spends most of his time in his garden (Maupassant 3, 4). He tries, but like a plant he cannot leave his roots (Maupassant 32-33). Even if he is not a plant, he shares a deep bond with nature. This presentation will concentrate on the narrator and his strawberry garden. It will discuss the idea that the Horla and the narrator are not human and act as a medium for demonstrating the importance of the environment.

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**LISTENING IN THE SILENCE: AN ETHNOGRAPHIC STUDY OF THE QUAKER COMMUNITY IN ATLANTA**

**AUTHOR: EMMA ROBERTS**

**ADVISER: PROFESSOR ABRAHAM ZABLOCKI**

This presentation examines the non-hierarchical and non-verbal nature of the Quaker community at the Atlanta Meeting of the Religious Society of Friends in Decatur. Based on ethnographic fieldwork conducted over the course of the semester in the Ethnography of Religion class, this presentation shows how information of organizational and theological nature is shared inside of a non-hierarchical religious community and explores the significance of a non-verbal worship service.

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**FEMINISM THROUGH FIFTY YEARS OF FILM**

**AUTHORS: RACHAEL SCOTT AND JENNIFER RICKE**

**ADVISER: PROFESSOR JIM WISEMAN**

This statistical project examines whether films produced in recent years are more likely to pass the Bechdel Test than earlier films. The Bechdel test requires that a film must contain two women, they must have at least one conversation, and that conversation must not be about men. In her comic *Dykes to Watch out For* Alison Bechdel introduced this test to reveal the many inaccurate portrayals of women in the film industry. The project’s films were selected by a random stratified sample, in which each stratified group was taken from the ten year increments beginning with 1973 and ending with 2013. Ten movies from each one of the five decades were selected and viewed over the course of two months. The conversations of each film were organized by gender involvement and topic to assess their performance on the Bechdel test. In doing so, the study strives to examine women portrayed by the film industry.

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## DEPRESSIVE-LIKE BEHAVIOR AND REDUCED HIPPOCAMPAL VOLUME CO-OCCUR WITH DECREASES IN HIPPOCAMPAL VASCULARIZATION IN MACAQUES

**AUTHORS: KAELA SINGLETON, GRETCHEN N. NEIGH, AND CONSTANCE HARRELL  
SHRECKENGOST**

**ADVISER: PROFESSOR JENNIFER LARIMORE**

Although the neurobiology of depression has not been fully clarified, reductions in hippocampal size have been demonstrated in depressed patients. Similar findings have reported in both non-human primates and rodents that develop depressive-like phenotypes. In rodent models, these changes in hippocampal morphology coincide with changes in cerebral vasculature. Specifically, rats exposed to chronic stress that develop depressive-like behaviors also exhibit a reduction in hippocampal vascularization. In the current study, we tested the hypothesis that the relationship between cerebral vascularization and hippocampal volume would extend to non-human primates. We assessed this hypothesis by examining vascularization in hippocampal tissue obtained from 14 adult female cynomolgus macaques (*Macaca fascicularis*). Subjects were maintained on a Western diet, behaviorally assessed, and classified by previously established criteria into control and depressed groups. Previous work on tissue from these subjects established that those animals that were classified as depressed also had a reduction in hippocampal volume as compared to controls. Unbiased stereological analysis was used to estimate vasculature length throughout the four main regions of the hippocampus. Consistent with the reduced hippocampal volume, macaques classified as depressed shown a decrease in cerebral vasculature within the anterior dentate gyrus of the hippocampus compared to control macaques. These findings illustrate that depressive-like behavior and reductions in hippocampal volume co-occur with reductions in cerebral vascularization in female cynomolgus macaques. Although future research will be necessary to determine causality, these data demonstrate that cerebral vascularization may play a role in the manifestation of a depressive phenotype and reduced hippocampal volume.

## THE EFFECTS OF COCAINE ON SLEEP

**AUTHOR: ASIA SYLVEST**

**ADVISER: PROFESSOR FELICIA JEFFERSON**

Sleep is a very important biological and psychological state that is crucial for cognitive performance, psychological performance and overall individual well-being for all organisms, including humans. The average person is required to have between to five to eight hours of sleep a say, even if the person happens to have a behavioral disorder, such as drug addiction. In drug-dependent individuals, specifically cocaine-dependent individuals, sleep loss is a major contributor to chronic drug use and relapse during abstinence. Cocaine, which is an incredibly powerful stimulant, has the ability to increase alertness and wakefulness in users, which also ultimately contributes to sleep loss in these individuals. Recent studies have shown that there are increased levels of adenosine triphosphate (ATP) in the brain of cocaine-dependent individuals and sleep-deprived individuals, suggesting that this happens for the brain to compensate for maintaining levels of cognitive function during sleep deprivation (Braken et al., 2013). High levels of ATP in the brain of cocaine-dependent participants also suggest that the brain produces the elevated ATP to compensate for metabolic vulnerability due to sleep loss (Braken et al., 2013). Based on these studies, we made a suggestion of possibly suppressing these excess levels of ATP in the brain, which may benefit cocaine-dependent people with sleep deprivation. Also, based on the aforementioned studies, we have suggested that examination of CART (cocaine-amphetamine regulated transcript) regulation in these individuals to determine if CART functioning also contributes to sleep deregulation in cocaine users.

**FROM DOCTORS TO GANGSTERS: ASIAN-AMERICAN STEREOTYPES AND LIFE TRAJECTORIES**

**AUTHOR: TRANG VO**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation focuses on how stereotypes affect the lives of Asian American young adults. Based on surveys and interviews conducted within Atlanta's Asian American community, I offer insight into how stereotypes are perceived and how they factor into life trajectories. Findings suggest that social groups and collective and/or individual identity play a significant role in the enactment of stereotypes. When their primary social group consists of other Asian Americans, my respondents appear most susceptible to stereotype pressures such as becoming doctors, whereas if they belong to more diverse social groups, they have greater freedom to explore alternative identities. Ultimately, the prevalence of the Asian "model minority" stereotype is problematic because it carries considerable societal pressures, which may account for the development of the gangster identity reported in the literature. This research demonstrates the need to disaggregate the various Asian ethnicities and that even supposedly positive stereotypes can have negative consequences.

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BSC 209-A W

**WELCOME TO HUMANITY: A CREATIVE WRITING**

**AUTHOR: KEBREHT WALKER**

**ADVISER: PROFESSOR CHRISTINE COZZENS**

My presentation explores my senior seminar project a short novel entitled *Welcome to Humanity*. This novel tells the story of seventeen year old Ren Hollins, who while investigating the disappearance of her mother discovers that she is the last remaining descendant of Red Riding Hood, the first protector of supernatural creatures in the small town of Humanity, New York. My presentation will include a reading an excerpt from this work and a discussion of my writing process.

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**PRESENTATIONS 3:35-3:55**

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BSC 210E

**HOW KATNISS CAME TO BE A GIRL: THE DISCOURSE OF GENDER AND PERFORMATIVITY IN "THE HUNGER GAMES"**

**AUTHOR: CAROLINE IGRAINE BARKLEY**

**ADVISER: PROFESSOR NICOLE STAMANT**

In this post-America dystopian novel, Katniss is a resident in Panem, a region under the control of The Capitol. Each year, The Capitol selects a boy and a girl from each of the twelve districts, "tributes," to fight to the death in an annual exhibition called "the Hunger Games." During her participation in the games, the varying perceptions of Katniss established through performativity constructs her as performing in multiple genders, making it near impossible to determine which gender she truly represents. Collins's androgynous gender choices for Katniss display a female heroine who does not conform to traditional gender stereotypes and physicalities. The construction of identity through Judith Butler's *Gender Trouble* and the notion of performativity allows for insight on the construction of Katniss's identity through the varying performances she is forced to give during the games, and the distinction of these identities from her construction of her own identity.

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**IDENTIFYING CRITICAL CONTROL REGIONS IN THE HUMAN LAT GENE PROMOTER****AUTHORS: MELISSA EASLEY AND KATHARINA GROEGER****ADVISER: PROFESSOR TIM FINCO**

The human LAT gene encodes a protein associated with various immune system cell types, including T cells, mast cells, and Natural Killer cells. Genes such as LAT possess promoter regions that play a central role in regulating gene expression. This project focuses on analyzing a 200 base pair region of the LAT promoter previously shown to impact promoter activity. Initially, sequential 50 bp deletions were introduced across the 200 bp promoter region to more precisely map important control elements. PCR was used to isolate deleted promoter regions that were then cloned into reporter plasmids. These plasmids were then introduced into T cells and mast cells to determine promoter activity. Preliminary results from the deletions suggest that the 200 bp region contains multiple regulatory elements.

BSC 102W

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**MULTICULTURAL MARSEILLE: A THREAT TO TRADITIONAL FRENCH IDENTITY****AUTHOR: EMILY RIVES****ADVISER: PROFESSOR PHILIP OJO**

Marseille, the second largest city in France after Paris, has been a very popular destination for immigrants for more than two thousand years. Its geographic location bordering Europe, Asia and Eurasia, and its Vieux Port [Old Port] welcome people from a large number of cultures and origins. Marseille is described as "the second city of France", but its cultural diversity may be a reflection of France as a whole. With increased multiculturalism, France (self-identified as a mono-cultural society with a traditional republic system) may no longer consist of predominately white Catholics of French ancestry that practice Western cultural customs. This presentation will analyze how the current multicultural diversity in Marseille continues to change traditional French identity through different multiracial and ethnic heritage, music, traditions and religion.

BSC 209-B W

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**CHARACTERIZATION OF MEDIAL AMYGDALA NEURONS PROJECTING TO THE BED NUCLEUS OF THE STRIA TERMINALIS IN THE MALE SYRIAN HAMSTER****AUTHORS: LAURA SEGURA, ASHLEIGH BURNS, AND ARAS PETRULIS****ADVISER: PROFESSOR JENNIFER LARIMORE**

The neural pathway between the medial amygdala (MA) and the bed nucleus of the stria terminalis (BNST) is part of a neural network that mediates social behavior. Since the characterization of the MA to BNST pathway is unknown, this study investigates whether these connections are glutamatergic or GABAergic in male Syrian hamsters. The retrograde tracer cholera toxin beta will be injected into the BNST, which will label the cell bodies of BNST-projecting neurons from the MA. Following exposure to a female Syrian hamster (salient), a male Syrian hamster (less salient), or an empty cage (no social cue), neural tissue will undergo immunohistochemical staining for the immediate early gene *c-fos*, be colocalized with the cell bodies of BNST-projecting neurons from the MA, and undergo in situ hybridization for *GAD65* or *vGlut2*. We hypothesize that neurons responsive to salient social cues are GABAergic and those responsive to less/no salient social cues are glutamatergic.

## **UNITED AND DIVERSE**

**AUTHOR: QUIANNA SMITH**

**ADVISER: PROFESSOR ABRAHAM ZABLOCKI**

This presentation examines the impact a diverse Methodist congregation has on the members, and the communities they choose to serve. Over the course of this semester ethnographic data regarding a Decatur United Methodist Church was collected utilizing participant observation techniques developed in the Ethnography of Religion course. This presentation will include information gathered from interviews with members and leaders of this church. With the Methodist church having a history of being ecumenical, this project explores how the church works across age, ethnicity and other forms of diversity.

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## **HOW DO AGNES SCOTT STUDENTS FACE FINANCIAL BURDENS?**

**AUTHOR: KORTIA WILLIAMS**

**ADVISER: PROFESSOR DOUG FALEN**

This presentation focuses on the financial burdens present amongst Agnes Scott students and how such burdens impact students' academic performance. The benefits of receiving a college degree are great within our society, as such privileges allow opportunities for one to further their education and improve their well being. Through the use of interviews and survey methods, the data provide information on students' financial aid experience and their personal financial responsibilities while attending school. The findings of this research are significant in that they assess students' knowledge of managing their personal financial responsibilities, as well as identifying potential strategies for assisting students with understanding financial aid availability and developing beneficial relationships with the financial aid department.



## POSTERS AND EXHIBITS

WOOLFORD B. BAKER ATRIUM, SCIENCE CENTER  
10:10-10:50

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### **ECO THEME HOUSE SUSTAINABLE LIVING**

**AUTHORS:** BELLA ALANAZI, JOCELYN CALVILLO, LINDSEY GOMES,  
QUYNH LE, YINYING LUO, XI ZHANG, AND YA PHONN

**ADVISER:** LEAH BRYANT

The seven residents of the Agnes Scott Eco House have spent the last eight months living in the only permanent house on 124 W. College Avenue. Though we all come from different academic and cultural backgrounds, what we share is a commitment to sustainable living. While residing in the house, we have participated in new initiatives through installing shower timers, composting, and installing water efficient shower heads. We have also organized and put on events for the campus, including open house and educated the campus via sustainable events. One of our most successful events has been do it yourself laundry detergent, which we will demonstrate during our poster presentation. This poster will show what we have done in the house and since the Eco House will continue for at least another year, we will also propose ideas for new projects that future residents in the house can pursue.

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### **THE EFFECT OF CROWD SIZE ON GOLDEN LION TAMARINS AND THEIR NURTURING BEHAVIORS**

**AUTHORS:** LORA BETH ALLEN AND HAZHAL AMEDI

**ADVISER:** PROFESSOR BONNIE PERDUE

Social behaviors vary greatly among primates, but the golden lion tamarin (*Leontopithecus rosalia*) is one of the only new world monkey species who provision their young with food items. Nurturing behaviors of the GLT also include conspecific grooming with tools. The hypothesis being tested is that as crowd size increases, social behaviors that are nurturing to the young also increase. Additionally, it is brought into question whether the GLT will recognize an increase in human crowd size as an increase in the GLT's own social group, and thus allocate more energy to behaviors that are nurturing such as conspecific grooming, proximate tool use, and play behaviors. By determining if the crowd size influences social behaviors, the welfare of the GLT can be maximized. The observations are taken from the golden lion tamarin exhibit at Zoo Atlanta in the United States of America. The data was analyzed using correlations.

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## **INFLUENCE OF WORK ON BOREDOM AND FACEBOOK USAGE**

**AUTHORS: COURTNEY ANDERSON AND NASTACIA PEREIRA**

**ADVISER: PROFESSOR JENNIFER HUGHES**

There are many factors that could affect an employee's productivity, activities, and well-being in the workplace. These factors could include workload and boredom proneness. The purpose of this study was to examine the relationships between workload, boredom, and the number of times Facebook is checked in a given work day. The first hypothesis stated that Facebook users that report being bored at work will check Facebook more often at work. Based on research that monotonous tasks can lead to workplace boredom (Loukidou, Loan-Clarke, and Daniels, 2009), the second hypothesis stated that Facebook users that report being busy at work will report less boredom at work. Lastly, we hypothesized that Facebook users that report being busy at work will check Facebook less often at work. The participants consisted of 27 men and 160 women that work at least 25 hours a week, have a Facebook account, and live in the United States. Participants completed the Job boredom scale (Lee 1986), via an online survey. The results of this study indicated that workplace boredom is not related to the number of times Facebook is checked at work ( $r(185) = .074, p = .497$ ) and that increased workload is not related to checking Facebook less often at work ( $r(185) = .052, p = .628$ ). A Pearson correlation indicated that Facebook users that reported being busy at work reported being less bored at work ( $r(185) = .424, p < .001$ ). The results imply that staying busy at work will keep employees from becoming bored.

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## **THE EFFECTS OF SWITCH I HEREDITARY SPASTIC PARAPLEGIA MUTATIONS IN KIF5A KINESIN**

**AUTHOR: MADELINE CHENEVERT**

**ADVISER: PROFESSOR THOMAS HUCKABA**

Hereditary Spastic Paraplegia (HSP) is a neurodegenerative disease characterized by spasticity in the lower extremities in simple forms, and retinopathy, dementia, ataxia, and impaired cognitive function in complex forms. HSP is caused by degeneration of the axons in the spinal cord, interfering with communication with the peripheral nervous system. Nineteen autosomal dominant mutations in the kinesin transport protein Kif5A are known to cause HSP. Five mutations, M198T, S202N, S203C, R204W, and R204Q were studied. They occur in the Switch-I region, which helps catalyze ATP. The mutant proteins, E251K (a non-Switch-I mutant) and a wild type control were expressed and purified to measure the function of each mutant in different assays. Surprisingly, despite the fact that HSP-causing mutations in Kif5A all lead to the same disease, the mutations affect the function of Kif5A in different ways. Additionally, substituting manganese for magnesium in the solution containing S203C can improve its function.

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## **THE EFFECT OF TIME AND TIME CHANGE ON SUN BEAR BEHAVIORS**

**AUTHORS: REBECCA CROSS AND GWEN ANGLETON**

**ADVISER: PROFESSOR BONNIE PERDUE**

Sun bears are often housed in zoos to prevent their extinction and to educate people about them. We measure welfare in zoos in order to help reduce or alleviate the negative stereotypic behavior that they can exhibit, such as pacing. Animal behaviors, like copulation and pacing, are shown to change with time of day. We propose that animals rely on global, environmental cues, such as sunlight, to make these adjustments, as opposed to local cues, such as the time of day based on a clock. Since Daylight Saving Time (DST) is a human imposed condition, after the fall time adjustment, sun bear behaviors should begin earlier in the day if they

rely on global cues. After DST, we recorded significantly more pacing occurrences and self-directed behavior than observed earlier. Future studies will vary recording sessions, while continuing this study, as well as aim to introduce different types of enrichment with the goal of reducing stereotypic behaviors.

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## **ATTACHMENT STYLES AND SEXUAL ATTITUDES**

**AUTHORS: KEIRAN FLYNN, CASEY BAILEY, SPARKLE HODGE**

**ADVISER: PROFESSOR EILEEN COOLEY**

Attachment styles and sexual attitudes have been studied in the narrow context of sexual motives and permissiveness. This study seeks to expand on prior research by measuring a broader definition of sexual attitudes including: emotion, physicality, relationships, and health. We hypothesize that low attachment anxiety and low attachment avoidance (i.e., secure attachment) are significantly correlated with positive, permissive sexual attitudes. The participants in this study will include students in the Introductory Psychology courses at Agnes Scott College. The measures we will use are the Experiences in Close Relationships-Revised Questionnaire (Fraley, Waller, & Brennan, 2000) and the Brief Sexual Attitudes Scale (Hendrick, Hendrick, & Reich, 2006). We expect that low attachment anxiety and low attachment avoidance will be significantly correlated with positive, permissive sexual attitudes. Counselors working with insecurely attached college students might benefit from exploring relevant sexual attitudes with their clients.

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## **IDENTIFYING PUTATIVE ENHANCER ELEMENTS FOR THE HUMAN LAT GENE**

**AUTHORS: LENA GLOWKA AND GEURIN SON**

**ADVISER: PROFESSOR TIM FINCO**

Enhancer regions are essential regulatory regions that cooperate with gene promoters to control gene transcription. The purpose of this project is to identify and investigate potential enhancer regions that regulate the expression of the human LAT gene. Previously, putative enhancer regions were identified using an in silico approach based on a set of epigenetic modifications typically observed in enhancer regions. Identified regions were isolated by PCR, cloned into a reporter plasmids, and tested for enhancer activity in human cell lines. Results to date from these experiments have demonstrated one putative enhancer region that augments LAT promoter activity. However, two other regions failed to display enhancer activity. Current efforts are being directed toward identifying and testing additional possible DNA regions that function as enhancers for the LAT gene.

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## **IMPULSIVITY AND REGRET: ANALYZING FACEBOOK USERS' POSTS AND PICTURES**

**AUTHOR: SPARKLE HODGE, AMARIS BRONNER, AND JENNIFER HUGHES**

**ADVISER: PROFESSOR JENNIFER HUGHES**

People are constantly joining Facebook in order to connect and communicate with friends and family. This study analyzes the effects of impulsive behavior on Facebook users' regret of posts and pictures. We examined whether or not Facebook users who are more impulsive will regret more Facebook posts. We also hypothesized that Facebook users who are more impulsive will regret more Facebook pictures. Our final hypothesis investigated whether or not length of time on Facebook influenced likeliness to regret posts and pictures. We used an impulsiveness scale, which was found to be reliable and valid (Patton, Stanford, & Barratt, 1995). Based on correlational analyses, the first two hypotheses were supported. However, for the third hypothesis, we did not find that length of time on

Facebook influenced likeliness to regret posts or pictures. Further research should focus on changes in impulsive behavior based on length of Facebook membership.

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## **THE KOTO EXPERIMENT: RESEARCH IN HIGH ENERGY PHYSICS**

**AUTHOR: MELISSA HUTCHESON**

**ADVISER: PROFESSOR MYRON CAMPBELL**

OTO is a high energy physics experiment located at the J-PARC Facility in Tokai, Japan that aims to discover and measure the rare kaon decay. This decay is a flavor changing neutral current process which directly violates CP symmetry and proceeds through second order weak interactions. The Standard Model predicts the branching ratio to be  $2.43(39)(6) \times 10^{-11}$  which is why this decay has never been observed. The experiment aims to first observe the decay and then measure at least 100 events to determine the branching ratio to a higher accuracy. A study of the experiment's Data Acquisition System was conducted in order to determine the dependence of the ADC pedestal values on which the accuracy of the experimental data relies heavily. This research was conducted through the University of Michigan's Physics REU Program during the summer of 2013.

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## **DOES EDUCATION MAKE A DIFFERENCE FOR WORK-FAMILY CONFLICT AMONG DUAL-INCOME COUPLES?**

**AUTHOR: YUN JIANG**

**ADVISER: PROFESSOR JENNIFER HUGHES**

Work-family conflict (WFC) occurs when the demands from the work domain hinder the capacity to meet demands from the family domain and family-work conflict (FWC) occurs when demands from the family domain hinder the capacity to meet demands from the work domain (Greenhaus & Beutell, 1985). Previous studies found inconsistent results regarding education's effect on WFC and FWC. The purpose of the current study was to investigate whether one's education level would influence one's perception of WFC and FWC among dual-income couples. We hypothesized that among individuals from dual-income households, those with a higher level of education would experience more WFC as well as more FWC. We found a significant regression equation for both WFC,  $R^2 = .37$ ,  $F(9, 228) = 15.08$ ,  $p < .001$ , and FWC,  $R^2 = .16$ ,  $F(9, 228) = 4.92$ ,  $p < .001$ . Participants' predicted WFC is equal to  $-4.074 + .664$  (education) +  $1.287$  (gender) +  $2.216$  (Caucasian/White) -  $.356$  (African American/Black) -  $.056$  (age) -  $.457$  (number of children) +  $.132$  (work hours) -  $.009$  (social support) +  $.281$  (stress) and education, gender, work hours, and stress level were found to be significant predictors. WFC increased by  $.664$  unit as education increased by one level. On the other hand, participants' predicted FWC is equal to  $9.161 + .441$  (education) +  $.893$  (gender) +  $.999$  (Caucasian/White) -  $.651$  (African American/Black) -  $.067$  (age) -  $.616$  (number of children) -  $.007$  (work hours) -  $.113$  (social support) +  $.151$  (stress) and education, age, number of children, social support, and stress level were found to be significant predictors. FWC increased by  $.441$  unit as education increased by one level. Therefore, our hypotheses that those with higher education levels would experience more WFC and FWC were supported.

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## **FACEBOOK FATIGUE: IS OVEREXPOSURE TO SOCIAL MEDIA TIRING US OUT?**

**AUTHORS: MEREDYTH A. KICHA, BOMI KIM, AND JENNIFER HUGHES**

**ADVISER: PROFESSOR JENNIFER HUGHES**

Our study focused on Facebook fatigue: Weariness associated with Facebook use. We hypothesized that users with more involvement in Facebook activities (i.e., longer use, more Friends, daily Facebook checks, and use of other social networking sites) would experience greater fatigue. We found that although there was no relationship between users' length of time using the site or the number of Friends a user had and fatigue, there was a significantly greater amount of fatigue felt by users who checked Facebook daily. Users involved with other sites also felt more fatigue than those who only used Facebook. Our second hypothesis, also supported, was that younger users would report more fatigue than older users. The final hypothesis stated men would experience less Facebook fatigue than women. No significant difference was found to support this hypothesis.

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## **EFFECT OF APPROVAL MOTIVATION OF REGRET AMONG FACEBOOK USERS**

**AUTHORS: BOMI KIM, MEREDYTH A. KICHA, AND JENNIFER HUGHES**

**ADVISER: PROFESSOR JENNIFER HUGHES**

People are often motivated to post status updates and pictures on Facebook. They also want others to evaluate them favorably. If a post is not well received by Facebook friends, it can lead to regret about the posting. Our first hypothesis was that Facebook users motivated by approval will regret more status updates and pictures posted on Facebook. Also, we hypothesized that women will report greater approval motivation than men, and women will regret more status updates and pictures they posted on Facebook than men. We recruited 412 participants to take an online survey. We used correlations and t tests to analyze our data. Only our first hypothesis was supported. Facebook users who feel a greater amount of approval motivation were more likely to regret their status updates and pictures. This study helps us to understand the relationship between approval motivation and regret about Facebook posts.

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## **THE ORGANIC SUMMER PROJECT 2013**

**AUTHOR: QUYNH LE**

**ADVISER: PROFESSOR LOCK ROGERS**

Interested in organic farming, environment protection and food safety in urban areas, I interned at Bai Thuong organic farm, under Action for the City, a nonprofit organization in Hanoi, Vietnam. Funded by the Hubert Scholarship, the project allowed me to understand the farmers' effort to grow vegetables without using chemicals, how organic foods are different from traditional foods and the farm's social agribusiness model. Through guided readings, along with conversations with farmers, organic consultants and business staff, I found some reasons why organic foods are still unpopular in local market regardless its high demand for safe and healthy foods. I also formed a volunteer team of Vietnamese youth to help farmers with this labor-intensive farming method. The project brought me insights on the differences between organic foods in Vietnam and in the United States.

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## **SKELETONS IN OUR CLOSET: A HISTORICAL AND BIOANTHROPOLOGICAL STUDY OF THE BIOLOGY DEPARTMENT'S HUMAN SKELETAL DISPLAYS**

**AUTHORS: LYDIA LINGERFELT AND JOHN PILGER**

**ADVISER: PROFESSOR JOHN PILGER**

For many decades two human skeletons have been used as teaching displays within the Agnes Scott Biology department. Little is known about the history of these displays, where they came from, and for how long they have been in possession of the college. However, skeletal remains can directly inform us of the lives of the individuals from which they came. This research project aims to approximate the date and mode of acquisition of the displays by the college and to investigate the history of these skeletons as post-mortem displays and to deduce information about the pre-mortem lives of the individuals. Past biology majors were surveyed to help determine a date of arrival of these skeletons and help unravel their histories in the biology department. Using bioarchaeological and forensic techniques, I have examined the osteological evidence to infer their sex, age of death, and discover any pathological indicators of health.

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## **INTERDEPARTMENTAL TECHNOLOGY SHARING: 3D PRINTER**

**AUTHOR: KIMBERLY LUONG**

**ADVISER: PROFESSOR NICOLE ACKERMAN**

A well-calibrated 3D printer is capable of producing any object that can be imagined and then modeled in a standard 3D modeling program. The objects can range from mundane cubes and key fobs to casts for broken bones or cost-effective models of cells. A 3D printer is capable of adding a tactile and visual component to an otherwise difficult to comprehend two-dimensional object masquerading as three-dimensional, thus engaging more senses to aid in learning. With the addition of a 3D printer to the Physics & Astronomy department, we invite other departments on campus to become comfortable with and to use this technology.

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## **COMPARISON OF RHYTHMIC MOTOR PATTERNS INDUCED IN TWO DIFFERENT WAYS**

**AUTHORS: AUDREY OSTERBIND AND JOY HECHT**

**ADVISER: PROFESSOR KAREN THOMPSON**

There is evidence that removing neural inhibition turns on a rhythmic motor pattern in grasshoppers, and histamine is the main candidate for the inhibitory neurotransmitter involved. We are using recordings from male grasshoppers (*Schistocerca americana*) to compare the patterns resulting from physically removing the neural input to pharmacologically blocking the neural input. We have recorded the electric activity of the motor pattern using Dataq software and quantified it with respect to burst period, duration, and variability. Removing inhibition is accomplished either by cutting the nerve cord below the third thoracic ganglion, the site responsible for providing inhibition, or by applying a histamine antagonist, such as ranitidine, to pharmacologically block the inhibition. Characteristics of physically isolated treatments are an average burst duration of 2.207 seconds with a standard deviation of 0.393 seconds, and an average burst period (burst duration/cycle) of 0.466 with a standard deviation of 0.078.

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## **WORKPLACE FRIENDSHIPS AND FRIENDING COWORKERS ON FACEBOOK**

**AUTHORS: NASTACIA PEREIRA AND COURTNEY ANDERSON**

**ADVISER: PROFESSOR JENNIFER HUGHES**

The purpose of this study was to gain an understanding of why people choose to become Facebook friends with people from work. It was predicted that those who perceive greater workplace friendship would report having more of their coworkers, bosses, and business associates as friends on Facebook. The participants completed the Workplace Friendship Scale (Nielsen, Jex, & Adams, 2000) as well as demographic information online via SurveyMonkey. As predicted, the more that workers perceive workplace friendship, the more friends they had who were either their coworkers, bosses, or other business associates. Our study extends and combines the literature on workplace friendships and Facebook friendships, as research on the two topics has not been done in conjunction.

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## **OUTNESS AS A FACTOR OF LESBIAN RELATIONSHIP SATISFACTION AND CONFIDENCE**

**AUTHORS: LEXI PULICE-FARROW AND JENNIFER HUGHES**

**ADVISER: PROFESSOR JENNIFER HUGHES**

Outness, or the disclosure of a person's status as a minority sexual orientation is one of the main predictors of relationship satisfaction in same-gender couples (Johnson and Deluty, 2000). The purpose of this study was to find if outness was a factor of relationship satisfaction and confidence in lesbian couples. The participants were 111 lesbian-identified females who were in romantic relationships with women. They completed an online survey with scales concerning relationship satisfaction and confidence, along with perceived privacy and outness for both themselves and their partners. Positive correlations were found between both the outness and the privacy of a participant and her partner. Positive correlations were also found between perceived partner outness and relationship satisfaction and relationship confidence. Finally, a positive correlation was found between perceived partner privacy and relationship satisfaction.

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## **RACIAL TENSIONS AT LIBERAL ARTS COLLEGES**

**AUTHOR: SANEEN SHAKEEL**

**ADVISER: PROFESSOR DUSTIN STEWART**

This project, which originated in FYS 190, examines racial tensions at small liberal arts colleges (SLACs), including Agnes Scott College, Macalester College, and Claremont McKenna College. Research performed for this project involved a literature review of scholarly and news articles, an interview with an Agnes Scott College alumna, and a study of the demographics of various SLACs. The results based on these findings showed that racial tensions—derogatory remarks made towards minority groups on college campuses, for example—are still evident at even the most prestigious institutions, but they are less palpable than they were in previous decades since each college now has a more thoroughly integrated environment. However, because racial and ethnic disparity in the numbers of white enrolled students and nonwhite enrolled students is still present to a certain extent, these case studies suggest there is much room for improvement, and this improvement may take the form of diversity programs, lectures, and workshops.

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## **SEXUALLY DIMORPHIC ALLOMETRIC SCALING IN THE SEX CHANGING FISH LYTHRYPNUS DALLI**

**AUTHOR: ALMA THOMAS**

**ADVISER: PROFESSOR LOCK ROGERS**

Allometric relationships frequently differ between males and females and provide insight into the life history of a species. For the bluebanded goby (*Lythrypnus dalli*), a bidirectionally sex changing fish, sex and size are closely tied to an individual's social and reproductive role, and as a result, important aspects of allometry may be sexually dimorphic. The *L. dalli* population is female-biased, and females form harems defended by large, territorial males. Sex is socially regulated such that the dominant fish is always male. With the exception of smaller 'mini males' that do not hold territories and utilize an alternative reproductive strategy, subordinates are female. Here, we quantified gonad, liver, and brain mass in field-collected males and females across a range of sizes. There was no overall relationship between gonad and body mass, but gonad mass was positively associated with body mass for males and females separately. As expected, the increase in ovary mass with size was greater than in males because female reproductive success increases with gamete production, while male reproductive success is a function of harem size. Liver mass scaled positively with body mass for males and females, but, corrected for size, females' livers were approximately 20% larger, suggesting a sex-specific physiological role. Brain mass was positively associated with body mass for all fish together, as well as males and females separately, and the proportional increase in brain size with body size was not different in males and females. These data suggest there can be substantial physiological consequences to being a male vs. female *L. dalli*.

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## **THE PHARMACOLOGY OF OVIPOSITION IN GRASSHOPPERS**

**AUTHORS: ABIGAIL VAKA, GIFTY AFFADZI, ANTOINETTE ANDERSON,  
SASHA GRANT, ZARINA MAY, ALLANA THOMPSON**

**ADVISER: PROFESSOR KAREN THOMPSON**

Exploration of the Histamine H<sub>2</sub>-Receptor Antagonists, Cimetidine and Gallamine, in Grasshopper Motor Control.

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## **SURFACE EXTRACTION OF DELTAMETHRIN FROM INSECTICIDE TREATED BED NETS**

**AUTHOR: DANIELA VASQUEZ**

**ADVISER: PROFESSOR TIM FINCO**

Deltamethrin is the insecticide used in many bed nets to kill any mosquitoes that come into contact with the surface as a way to combat the transmission of Malaria. The current method of extracting Deltamethrin does not measure the insecticide on the surface of the net, but all the insecticide within the polymer that makes up the weave. Three different methods of extracting the deltamethrin from the surface of the net were tested. The solvent extraction submerged the net sample into solvents for set exposure times. Tape-strip extraction used adhesive medical tape to strip the deltamethrin from the surface of the net. Crockmeter extraction used a crockmeter to rub off the surface deltamethrin from the net. The three different methods were compared and will be used to propose an adjusted extraction method to the World Health Organization for nets that incorporate deltamethrin into netting weave polymer.

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## **WOMEN VS. MEN: AN INVESTIGATION OF ENGAGEMENT WITH FACEBOOK**

**AUTHOR: CHEN ZUO**

**ADVISER: PROFESSOR JENNIFER HUGHES**

Past research has found that young female users report a significantly higher level of engagement with Facebook than their male peers. The purpose of this study is to examine how men and women across age groups differ in their engagement with Facebook in general and in specific activities. Our first hypothesis was that women would check their Facebook more frequently. The second hypothesis was that women would post Facebook statuses more frequently. The third hypothesis was that women would "like" others' Facebook statuses more frequently. And our last hypothesis was that women would also comment on others' Facebook statuses more frequently. We recruited 198 participants between 18 to 68 years of age. They completed an online survey about demographic information and Facebook usage. Independent samples t tests were used to analyze our data. Significant results were found for all four hypotheses, suggesting that women are more engaged with Facebook than men.

**PERFORMANCES BY AGNES SCOTT COLLEGE DANCE STUDENTS, GAINES CHAPEL, PRESSER HALL  
12:00 – 1:00**

***W74* (2012)**

CHOREOGRAPHER: STEPHANIE TIRADO  
MUSIC: AMON TOBIN  
COSTUMES: STEPHANIE TIRADO  
DANCERS: NICOLE CAVALLINO, CHANDLER SMOAK, DIARRA WEBB

***BELlicOSE* (2014)**

CHOREOGRAPHER: STEPHANIE TIRADO  
MUSIC: AMON TOBIN  
COSTUMES: STEPHANIE TIRADO  
DANCER: STEPHANIE TIRADO

***NATIONAL BARRIERS* (2012)**

CHOREOGRAPHER: CHANDLER CONVERSE  
MUSIC: ALBUM LEAF, CHARLIE CHAPLIN  
COSTUMES: CHANDLER CONVERSE  
DANCER: NICOLE CAVALLINO, STEPHANIE TIRADO

***SECOND ARABESQUE* (1919)**

CHOREOGRAPHER: RUTH ST. DENIS  
STAGED FROM THE LABANOTATION SCORE BY: OLIVIA BELLO  
MUSIC: CLAUDE DEBUSSY  
DANCERS: OLIVIA BELLO, TAYLOR BROOKS, NIKKI SOLANO  
COSTUMES: AGNES SCOTT DANCE PROGRAM

***SCOLD* (2013)**

CHOREOGRAPHER: CHANDLER CONVERSE  
MUSIC: ESMERINE  
COSTUMES: CHANDLER CONVERSE  
DANCER: NICOLE CAVALLINO, MILLER LANSING

***HAPPENSTANCE* (2013)**

CHOREOGRAPHER: CHANDLER CONVERSE  
COSTUMES: CHANDLER CONVERSE  
DANCER: DIARRA WEBB

***CIRCADIAN RHYTHM* (2014)**

CHOREOGRAPHER: STEPHANIE TIRADO  
MUSIC: ELUVIUM AND KODOMO  
COSTUMES: STEPHANIE TIRADO  
DANCERS: NICOLE CAVALLINO, CHANDLER CONVERSE,  
MILLER LANSING, NIKKI SOLANO, CHANDLER SMOAK