



SpARC

AGNES
SCOTT
COLLEGE

SPRING ANNUAL
RESEARCH
CONFERENCE

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2019

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Presentation Session, 9:00-9:20
(in alphabetical order of first author)

LDR 200: Designing a Healthy Campus

Authors: Gabrielle Anthony, Kyle Huerta
Zarine Ahmed, Julianna Faletra,
Catherine Seaver

Adviser: Professor Amy
Patterson

Location: Bullock 210 E

In this session, students enrolled in the LDR 200 class will present their proposals for enhancing physical, mental, and social health through modifications to the Agnes Scott campus built environment. The students in the class have worked in teams throughout the semester to review existing literature from the fields of public health, architecture, and urban planning, as well as to collect data from members of the Agnes Scott community on the ways that the built environment affects faculty, staff, and student health. Students will provide an overview of their research findings from a campus-wide survey and photovoice research. Students will also discuss the ways that these findings informed their proposals.

Perceptions and Uptake of the Flu Vaccine Among College Students

Author: Jessica Costero

Adviser: Professor Daisy
Bourassa

Location: Bullock 209B W

Flu vaccination rates on college campuses range from 8-39%, which is below the Healthy People 2020 target recommendation (NFID, 2016). This is particularly dangerous because influenza viruses are known to circulate rapidly on college campuses due to constant exposure to close quarters such as living spaces, classrooms, shared restrooms, and social activities-much like the conditions of long-term care facilities (NFID, 2016). This research project sought to determine the contributing factors that facilitate or prevent uptake of flu vaccine among college students. Online surveys and in person focus groups were conducted to assess students' understandings of the flu and flu prevention. In addition to understanding college student's knowledge of the flu, information regarding their own behaviors and perceptions surrounding the flu and flu vaccines was documented. In this presentation, the Thomas Theorem and Marxism are utilized as theoretical lenses in order to understand the behavioral practices from both micro and macro level perspectives. This applied research enables possible changes to be made to school-located immunization programs and college organizations.

Short Term Surgical Trips in Guatemala

Authors: Mahek Dodhyani, Julia
Marshall, Sonia Patel, Ja'lina Ghani

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

A lack of implemented regulation of short-term surgical trips to Guatemala by North American providers raises ethical concerns surrounding suboptimal treatment practices and maintenance of inequalities through systemic structural violence. These factors ultimately lead to a decrease in the quality of care, weaken the healthcare system, and result in adverse healthcare outcomes. This presentation examines the current short-term surgical mission trip practices and provides a public health intervention to strengthen short-term surgical mission trips by developing safe, sustainable, and regulated surgical practices in Guatemala. Our intervention consists of 4 main components that approach the problem at 4 different levels of the health system in Guatemala. The intervention addresses the problem starting at the government level, non-profit level, health professional level, and the patient level. Our intervention will provide training sessions with government employees, create online training for visiting surgeons, develop a communication platform between NGOs/organizations located in Guatemala, and conduct patient advocacy workshops. This research hopes to enable a different way of practice of short-term surgical trips with more ethical accountability, cultural awareness, and safer medical practices.

Assia Djebar and the Search for Linguistic Identity

Author: Pippa Marple

Adviser: Professor Philip
Ojo

Location: Bullock 103 W

Like many Francophone authors from North Africa, Assia Djebar struggled with her personal and professional identities as a native Arabic speaker writing in French, the language of the colonizer. This presentation will provide historical context about the French presence in Algeria, with a focus on attitudes towards the French language. I will use Djebar's novel *La Disparition de la Langue Française* to explore her ideas of linguistic exile and language as cultural identity. This novel tells the story of Berkane, an Algerian man living in Paris, who returns to his homeland after twenty years. I show how the linguistic and cultural identity struggle is reflected in Djebar's work by comparing her experience with that of the fictional Berkane who, too, seeks balance between two conflicting languages.

Parasitic Souvenirs: What We Can Learn About Barn Swallow Migration from Their Malaria Parasites

Author: Ilse Ortega Eguia

Adviser: Professor Iris
Levin

Location: Bullock G09 (Teasley)

Avian malaria parasites (*Plasmodium*, *Haemoproteus*, and *Leucocytozoon* spp.) infect a wide range of birds around the globe. Scientists continue to discover new species and lineages as they build an understanding of host specificity and geographic distribution of various avian malaria parasites. These parasites can serve as biogeographic markers for their bird hosts. Because hosts can become infected with these parasites in different locations, we can obtain information about where the birds acquired their lineage(s) of parasites by comparing the detected lineages to a global database of avian malaria parasites (MalAvi). I screened 239 barn swallows (*Hirundo rustica erythrogaster*) for avian malaria parasites using a nested PCR protocol that amplifies a portion of the parasite cytochrome *b* gene. The samples were from migratory barn swallows breeding at sites in Colorado and Georgia, sampled from 2014 to 2018. I found that 17 (7.1%) birds were positive for avian malaria parasites. I compared the positives to previously published sequences in the MalAvi database. This analysis revealed six lineages previously identified in other songbirds and five unique lineages of parasites that differed by 1-5 base pairs. We can use the metadata accompanying each lineage match to gain knowledge on host specificity and geographic range of the lineage. From this, we can draw inferences about the overwintering sites of barn swallows in South or Central America, information that is still lacking for the North American subspecies. Therefore, avian malaria parasites can serve as biological ‘souvenirs’ of their hosts’ journey throughout the annual cycle.

Deaf Liberation in the United States

Author: Nicolette Paglioni

Adviser: Professor Mary
Cain

Location: Bullock 102 W

This presentation traces the history of the Deaf community in the United States to its unlikely origins in a Parisian boarding school for young Deaf boys, a connection that has never before been established. In 1760, a priest named Abbé Charles-Michel de L'Épée founded the world's first school for the Deaf in Paris. In 1860, the rise of oralism challenged the use of sign language in Deaf education. By 1960, sign language had been banned in Deaf schools for 80 years. Along the way, both French and American allies of the Deaf attempted forms of resistance in vain, Black Deaf schools in the United States developed their own forms of sign language, and Deaf communities had to fight for

access to 911, which they would not receive until the late 1980s. I argue that for centuries, the Deaf have been under the oppressive regime of the hearing, from horrific experiments on 18th-century Deaf children, to the prohibition of Sign Languages in the 19th century, to the mainstreaming of Deaf children into hearing schools in the 20th century, to Nyle DiMarco's Twitter feed. Finally, I will explain how and why this history is so important to hearing people in 2019.

Global Living Learning Community

Author: Jasmine Torres

Adviser: Professor Daisy
Bourassa

Location: Bullock 209B W

A Living-Learning Community (LLC) is a group of Agnes students who have chosen to expand their education through shared learning experiences outside of the classroom. Living-Learning Communities positively enhance a student's social and academic integration, personal and intellectual growth, collaborative learning, and problem solving skills. This learning community is for Scotties who have an interest in global learning. Being the first year in which LLCs were integrated in the theme houses, the Global Learning house engages, educates and empowers students to live and lead in a global society. For the past few months, we have invited faculty and staff to have dinner with us and talk about their global experiences. We have been specifically interested in how these experiences throughout the school year have made an impact on each individual's life and style of leadership in addition to how these experiences have related or differed from our own experiences. We will discuss and share our learning experiences when participating in small house programs, large house programs with at least one individual that is part of the Agnes Scott community, and large collaborative events with all the three Living Learning Community homes as well as the Agnes Scott community.

Isotopic Identification Using Cerenkov Light in Solution Using a Varied Index of Refraction

Author: Ruoyi Wang

Adviser: Professor Nicole
Ackerman

Location: Bullock 112 W

Visible light produced by the Cerenkov effect has been measured in vivo and the observation has led to a new molecular imaging technique for cancer research known as Cerenkov luminescence imaging. Different isotopes serve different medical purposes

and there could be contamination in the isotope sources where two or more isotopes are mixed together, therefore resulting in misleading findings. Our research project investigates isotopic identification using Cerenkov light in solution with a varied index of refraction to detect possible situation of contamination in medical research. I used the Geant4 Monte Carlo toolkit to simulate the Cerenkov light production of different beta decay isotopes using different glycerol concentrations to change the index of refraction of solution. We modeled the results using python and analyzed the possible outcome if any of those two isotopes are present together. We found that it is possible to separate certain isotopes within some range concentrations based on the Cerenkov light production.

G-Dragon in Blackface: The incorporation of African-American Aesthetics in Korean Pop Music

Author: Catherine Weeks

Adviser: Professor Tracey
Laird

Location: Bullock 209A W

The rapper, singer, and songwriter Kwon Ji-Yong, known as G-Dragon, is at the forefront of the Korean Wave, a dominating global media Korean Pop phenomenon. G-Dragon himself entered the K-Pop industry at a very young age, first as one of five members of the South Korean boy group BigBang. His androgynous flower-boy looks, eclectic style, and electro-pop dance music swept him into the international media's attention, particularly after his 2009 solo debut. He has become K-Pop's most iconic idol. Since then, G-Dragon's image and music have evolved from bubblegum-pop to overtly African-American-influenced elements of clothing, hair, and sound. Unfolding on a global stage, the performer has come under fire for wearing blackface, both literally and figuratively in music videos and other public appearances. In the context of globalized music, I analyze commodification of culture and, as one scholar puts it, "reterritorialization" of African-American aesthetics across borders of race and culture.

Presentation Session, 9:25-9:45
(in alphabetical order of first author)

Fashion in Martinique: Carnival and the Poto Mitan Woman

Authors: Mackenzie Bellamy, Jamissa Rainey, Asmiya
Kazmin, Stephanie Bryan-Popo

Adviser: Professor Philip
Ojo

Location: Bullock 103 W

This presentation focuses on the importance of fashion in Martinique and its relation to the people's identity. Using research material as well as firsthand information collected from the Journeys' trip to the island, we will analyze the impacts of fashion on women and Carnival as well as the ways in which it is a representative of the Catholic religion and Martinique's African ancestry.

Projecting Progress: Palestinian Solidarity Murals

Author: Avalon Ward Bonlie

Adviser: Professor Mary
Cain

Location: Bullock 102 W

Since the founding of Israel in 1948, the Irish have been unwavering in their support for the Palestinian cause. In Northern Ireland, the pro-Palestinian sentiment has manifested through visual culture and the production of large-scale murals in solidarity with Palestinians. These murals, typically painted in nationalist neighborhoods in Belfast and Derry/Londonderry, join the tradition of political murals in Northern Ireland. This presentation explores the motivations and consequences of republican murals displaying international solidarity with Palestinians from the first mural depicting Palestinians in 1982 to later murals in the 2010s. While republican muralists were attempting progressive displays of international solidarity, their murals depicting Palestinians are complicated by gendered and Orientalist stereotypes and center the Irish republican viewpoint. The resulting propaganda fails to advance the Palestinian cause and perpetuates narratives of Arab Palestinians as either militants or victims.

STEM Living and Learning Community

Authors: Amirah Clarke, Furyal Ahmed, Cassidy Caven, Abigail Harden, Mihika Rao, Hannah Shaban

Adviser: Professor Daisy Bourassa

Location: Bullock 209B W

The Science, Technology, Engineering, and Math (STEM) Living and Learning Community provides a positive environment for the Agnes Scott STEM community and builds bonds between its residents. The residents work together to create programs, dinners, and events to strengthen the Agnes Scott STEM community. There are a total of six residents in the house from chemistry, astrophysics, math, biochemistry, nursing, and neuroscience programs of study. One of the benefits of having various majors is that there is an equal representation of the STEM fields, ensuring that programming is varied to encompass the widespread net that STEM casts. In addition, half of the residents serve as tutors for STEM courses driving more interaction within the community and with one another, creating bonds on an academic level and a network of collaborators who are available to assist with questions and have study sessions. The residents are required to attend weekly meetings to discuss house events (such as collaborating with the GEMS program), attending research seminars, and hosting professors from the STEM department for dinner. In addition to the variety of majors represented, all residents contribute their own backgrounds and experiences. As with the Global and Leadership LLCs, the STEM LLC is comprised of various religions, races, and lifestyles. We work together to continue building on our wonderful STEM community.

Sustainable Food Systems

Author: Mahek Dodhyani

Adviser: Professor Rachel Hall-Clifford

Location: Bullock 308 At

CARE is a non-profit organization that works towards ending global poverty by implementing community-based efforts specifically around women and children. Food nutrition and security is one of CARE's primary efforts, as it is the largest humanitarian crisis since 1945. In order to create a sustainable food system, it is important to consider agriculture, gender, economic stability, emergencies, and nutrition. In this presentation, I will discuss three projects I have worked on during my internship at CARE in the summer of 2018. Kore Lavi, Harande, and Shohardo are global projects in Haiti, Mali, and Madagascar that have helped deepen my understanding of global food systems in a country. I will discuss the learning and conclusions I have gained regarding various components of culture, beliefs, government structures, societal norms, accessibility, and climate that work together to ensure a dependable food system.

From "We Are Different" to "We Are One": Evolution of LGBTQ+ Popular Music in Chinese-Speaking World

Author: Xiangyuan He

Adviser: Professor Tracey Laird

Location: Bullock 209A W

Popular music plays an important part in promoting rights for the LGBTQ+ community in the Chinese-speaking world, including but not limited to Mainland China, Hong Kong, Taiwan, Singapore and Malaysia. During the past 20 years, goals and approaches of Chinese LGBTQ+ popular music developed chronologically into four categories: 1) to express, in first person, emotions and thoughts related to the pursuit of love within a non-traditional romantic context, specifically same-sex affection; 2) to confront the difficult reality for gender minorities, and resist outside prejudice and discrimination from the LGBTQ+ point of view; 3) to call for care, understanding, and support for multiple gender values from the non-LGBTQ+ point of view; and 4) to promote love and inclusiveness for all, regardless of different identities, from the perspective of common humanity. While each area is in different stages of the struggle for LGBTQ+ rights, the dynamic of development is observed in different Chinese-speaking areas actively through the work of popular musicians. The recent legalization of same-sex marriage in Taiwan stands as a beacon of hope for continued progress in this area of human rights.

LDR 200: Designing a Healthy Campus

Authors: Julia Marshall, Natalia Mackiewicz, Kaya Write, Lane Pigford, T'erah Spencer

Adviser: Professor Amy Patterson

Location: Bullock 210 E

In this session, students enrolled in the LDR 200 class will present their proposals for enhancing physical, mental, and social health through modifications to the Agnes Scott campus built environment. The students in the class have worked in teams throughout the semester to review existing literature from the fields of public health, architecture, and urban planning, as well as to collect data from members of the Agnes Scott community on the ways that the built environment affects faculty, staff, and student health. Students will provide an overview of their research findings from a campus-wide survey and photovoice research. Students will also discuss the ways that these findings informed their proposals.

Male Bean Beetles (*Callosobruchus maculatus*) Show a Preference for Virgin Females

Authors: Emma McKeon, Zaria Dyer

Adviser: Professor Iris Levin

Location: Bullock G09 (Teasley)

The male bias for choosing virgin mates has been shown in many different invertebrate species and is believed to have many consequences for male fitness such as increasing paternity and decreasing the likelihood of sperm competition. The current study sought to explore male mate choice in *Callosobruchus maculatus* and to provide more evidence for the virgin mate bias. We hypothesized that male bean beetles prefer virgin mates, and we predicted that if we presented virgin males simultaneously with the choice between a virgin and a non-virgin female to mate with, the male would choose the virgin female. Our results supported a significant bias for virgin females in open field mate trials and showed an 8:1 bias for virgin:mated females. These findings provide support for the virgin mate bias in a polygamous animal species, as well as provide a wealth of possible future research, including identifying the mechanism of mating status identification in this species, effects of female age on the virgin mate bias, and verifying the existence of this bias in other animal species, namely vertebrates.

What in the Gender? Perspective on Gender at Agnes Scott College

Author: Acacia Salisbury

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

The intention of this study is to understand how perceptions of trans and gender non-conforming students impact correct pronoun usage and the experience of trans and gender non-conforming students on the Agnes Scott College campus. This study investigated whether there was a correlation between a lack of education surrounding pronouns and the misgendering of trans/non-binary students. The methods used were an online survey and interviews with both cis-gender and trans students at Agnes Scott. Cis-students were asked questions evaluating their relationship with pronouns and misgendering people. Trans-students were also asked questions evaluating their experiences around being misgendered and experiences of gender affirmation on campus. Qualitative data reveal there is a steep learning curve around gender identity and pronouns when students first come to Agnes Scott College. Common areas, such as the dining hall and the student center, are the most common site of misgendering. Overall, almost all cis-gender students admitted to feeling uncomfortable and guilty when misgendering their peers. Although Agnes Scott offers a variety of education programs around gender identity, this study indicates that orienting students into a gender diverse community must be much more comprehensive. Gender Essentialism,

hypervisibility, and feminism are used to contextualize and offer an explanation to the gender dynamic taking place on Agnes Scott's campus.

Mathematically Modelling the Acoustics of Campus Noise Problems

Author: Emma Shaw

Adviser: Professor Nicole
Ackerman

Location: Bullock 112 W

In past years, there have been reports of a noticeably loud noise on the upper patio of McCain Library, and it has been deduced that the noise comes from an air conditioning unit in Alston Student Center. Assuming this problem is caused by the flow from the air conditioner causing a standing wave between the two buildings, mathematical techniques were employed to try to model the issue. The specific goal of using acoustical mathematics is to find a spectrum of frequencies to match what was recorded from the patio of McCain. Understanding the modelling of this problem could also lead to a larger understanding of the importance of acoustics on environmental noise control.

**Welcoming Remarks by President Zak, Opening Reception, and
POSTERS, presented from 9:50-10:25
(in alphabetical order of first author)**

Variable Star VX Hya

Author: Icarus Albert

Adviser: Professor Kathryn
Gordon

Variable stars are stars that change in brightness either due to an external eclipsing body or an internal swelling and shrinking. The luminosity of this variable star, VX Hya, was observed over a 5-hour period, showing clear changes in apparent magnitude. We used the SARA-Kitt Peak 1-meter telescope for our observations and MaximDL to process and analyze the data. We then graphed them in Excel. From the data, we found that VX Hya varied over a period of 188 minutes with a variation of ± 0.332 magnitudes. Variable stars can be used to calculate distance using the period-luminosity relationship and the distance modulus, which, when combined, help calculate the size of the universe.

The Media Coverage of the Laquan McDonald Shooting and How Much We Really Know

Author: Jada Beasley

Adviser: Professor Willie
Tolliver

This project focuses on the way in which media outlets covered the life and tragic death of Laquan McDonald due to a police shooting involving former Chicago officer, Jason Van Dyke. There were twenty-five media stories studied to see how many articles separately covered specific topics regarding the tragic story and aftermath. These topics include Laquan McDonald's personality and goals, his colorful past, his family life and upbringing, and finally the legal case against Jason Van Dyke. The amount of times each topic is mentioned in each article was counted in order to better understand trends among the twenty-five stories. Other trends, such as tone of voice or use of terms with negative connotations, were also mentioned. To summarize, the results were analyzed and it was concluded that the general public only knows information about the Laquan McDonald story based heavily, if not completely, on media coverage. The study shows there may a trend in the information contained within media articles about African American social justice issues and this in fact perpetuates negative stereotypes of the black community.

Influence of Serotonin on Dominance in *Procambarus Clarkia*

Authors: Jasmine Berry, Eman
Khwaja, Na'imah Rashied

Adviser: Professor Elizabeth
Jeffress

In dominance hierarchies, Louisiana crayfish (*Procambarus clarkii*) display agonistic behaviors that symbolize their status as dominant. Crayfish exhibit aggression during antagonistic interactions, which can result from competition in food, shelter, and mates. In crayfish, the neurotransmitter that regulates aggressive behavior is serotonin (5-hydroxytryptamine). Serotonin is produced in the enteric nervous system and central nervous system and modulates emotion. To understand how serotonin influences roles in established hierarchies, crayfish were exposed to the neurotransmitter serotonin through a diluted bath and observed for immediate changes in behavior in a secluded environment with a dominant male. We hypothesized that the administration of serotonin to a subordinate crayfish would result in both an increased frequency and duration of dominant behaviors displayed, when compared to subordinate crayfish that were not exposed to serotonin. In order to establish whether there were any significant differences in displayed dominant behavior in the subordinate crayfish exposed to serotonin compared to those that were not, a *t*-test and one-way ANOVA were conducted. Based on the results, it can be inferred that serotonin does not have an effect on dominant behavior displayed in subordinate crayfish. This study provides a greater understanding of the neuroendocrinological impacts of dominance hierarchies in crayfish and how neurotransmitters can influence dominant and aggressive displays.

Effect of Cannabidiol (CBD) Administration on Anxiety-like Behaviors Exhibited in Female Mice

**Top 10 Poster Award Winner*

Authors: Jasmine Berry, Sherica Hamilton, Na'imah
Rashied, Isabella Kammerer, Kyarra Perry, Autumn
Philpot

Adviser: Professor Barbara
Blatchley

Anxiety disorders affect approximately 40 million people in the US and can cost an individual thousands of dollars in medical expenses. As the price of medical treatment increases, alternative treatments are being considered. The use of cannabidiol (CBD) oil to treat anxiety disorders has recently garnered interest due to the legalization of marijuana. CBD is a non-psychoactive compound in marijuana. Previous research has demonstrated that the administration of CBD inhibited anxiety-related behavior in animal models. To further elucidate the influence of CBD on anxiety-like behavior, CBD diluted in water was administered to female mice. Forced swim and open field tests were utilized to stimulate anxiety and depressive-like behaviors in the mice. Behavioral data was then collected from video recordings and statistically analyzed. It was hypothesized that administering CBD to female mice would reduce the frequency of anxiety-like behavior compared to controls. Results demonstrated that female mice

were more immobile during the forced swim test and had less locomotor activity during the open field test compared to female mice that did not receive the CBD treatment. These findings suggest that CBD reduced anxiety in female mice. The results of this study provide a greater understanding of the role of CBD on anxiety-like behavior and its use as a treatment for anxiety disorders.

Mapping Ecological Light Pollution on Agnes Scott College's Campus and Its Effects on an Urban Adaptor **Top 10 Poster Award Winner*

Author: Elizabeth Borum

Adviser: Professor Iris
Levin

The 2016 new world atlas of artificial night sky brightness found that about 83% of the world's population and more than 99% of the U.S. and European populations live under light-polluted skies. As artificial light at night (ALAN) has increased worldwide with urbanization, so has its effects on ecological communities. In avian species, this can include early onset of dawn song, altered nighttime activity, and a myriad of physiological effects attributed to sleep disruption. Our focal species, the Northern mockingbird (*Mimus polyglottos*) is a ubiquitous urban-adapted species, making it perfect for studying within the context of ecological light pollution. We studied the effects of ALAN on mockingbirds during the beginning of their breeding season. This study aims to 1) map the light environment on Agnes Scott's campus by systematically sampling ALAN with a scientific-grade light meter, 2) measure ALAN at mockingbird nests during the nestling period, 3) use morphometric measurements to calculate body condition in nestlings to relate to ALAN, and 4) quantify telomere attrition (indicator of nestling quality) and oxalic acid (indicator of sleep debt) to further understand potential effects of ALAN during this critical early life stage.

Sexual Behaviors of Young Adult Women of African Descent

Author: Thai Boyd

Adviser: Professor
Stacey Dutton

In this study we wanted to evaluate young of African descent women's ideals and experiences around sex, sexuality, sexual identity, and sexual health. During Dr. Dutton's 2017 senior seminar course, students developed a 33-question survey to evaluate these factors in students at Agnes Scott College. A total of 192 responses were collected and analyzed to determine differences in sexual history, sexual knowledge, and sexual health between the students of African descent and Caucasian students. We found major differences in the level of comfortability that these two groups had in discussing topics of sex with persons of authority, seeking and maintaining good sexual health care, and sexual pleasure. Despite the progressive nature of the college, we

speculate that these differences are attributed by long held stigmas of distrust in the healthcare industry by African-Americans and cultural influences.

Increased MAPK Expression in Rett Syndrome-Model Mice

**Top 10 Poster Award Winner*

Authors: Alicia Bukowski, Mahal Bugay,
Maiguie Sabinano, Jasmine Torres

Adviser: Professor
Jennifer Larimore

Dysbindin-1 (DTNBP1) encodes for the Dysbindin protein, a component in BLOC-1, a multi-subunit protein that regulates endosomal trafficking in cells. BLOC-1 is found in all cell types, but is particularly important for trafficking in the synaptic vesicles of neurons. Loss-of-function mutations in DTNBP1 are associated with various neurodevelopmental disorders, including Rett syndrome and schizophrenia. MAP kinases (MAPK), also known as extracellular signal-regulated kinases (ERKs), act as an integration point for multiple biochemical signals, and play a crucial role in signal transduction of neuronal functions connected to synaptic plasticity, long term potentiation, learning, and memory consolidation. Previous research has demonstrated that MAPK levels were significantly decreased in patients with schizophrenia, and we believe that MAPK may be implicated in other neurodevelopmental disorders, such as Rett syndrome. For this purpose of this study, we utilized two neurodevelopmental disorder mouse models: Dysbindin knockdown cells and T158M cells, which is a well-known model for Rett syndrome. We found that T158M cells had increased expression of MAPK protein, which may indicate a novel relationship between MAPK and MeCP2.

Predicting Feelings of Gratitude and Intention to Quit at Work

Authors: Nicole Eatmon, Alayna Miller,
Hajar Harda

Adviser: Professor Jennifer
Hughes

Gratitude strongly relates to life and work satisfaction, which in turn has strong implications for overall well-being. Factors that predict feelings of gratitude at work and intentions to quit were examined by means of multiple regression. For this study, we hypothesized that job satisfaction, affective communication, supervisor support, organizational support, job engagement, and social connections would predict feelings of gratitude at work. We also predicted that those same variables would predict intentions to quit at work. Three hundred and twenty participants were recruited to take an online survey to assess our predictor and outcome variables. Using multiple regression, we found partial support for both of our hypothesis in that job satisfaction and supervisor support predicted feelings of gratitude; job satisfaction, affective organizational commitment, supervisor support, and social connections predicted intention to quit. Our model for gratitude accounted for 27.3% of the variance, $F(7, 266) = 15.68$, $p < .001$. Our model for intentions to quit accounted for 67.1% of the

variance, $F(7, 266) = 80.48, p < .001$. By learning which factors predict gratitude and intentions to quit, employers will better be able to maximize gratitude and minimize intentions to quit within an organization. Exploring the role of other social identities, such as race and sexuality, as predictors of gratitude at work and intention to quit would be interesting for future research.

Effects of Cannabidiol on Anxious and Depressive Behavior in Male C56/B6 Mice

Authors: Alice Edwards, Leila Agbogou,
Tayler Arnold, Amirah Clarke, Dahrís
Tavaris, Nia Thompson

Adviser: Professor
Barbara Blatchley

The recent increase in legalization of marijuana, also known as cannabis, for medical and recreational use has brought forth questions about its potential uses and scheduled status. Much of the debate centers around cannabidiol, CBD, a compound in cannabis separate from the psychoactive Tetrahydrocannabinol. CBD has been experimentally shown to be effective in mediating certain epileptic seizures, and while clinical research is in primary phases, anecdotal evidence suggests that it could have therapeutic effects on many other conditions, including anxiety and depression. To determine if the CBD caused alterations in the mentioned conditions, male C56/B6 mice were used as the model species due to their susceptibility to anxiety and depression. The forced swim test and the open field test methods were used to induce anxious and depressive behaviors in the mice. These tests evaluate antidepressant efficacy and behavior by putting mice in an inescapable tank filled with water and a walled enclosure respectively, to ultimately measure the amount of mobility and anxious behaviors exhibited in each test. Experimental group mice were administered CBD through powder introduced to their water supply, which is predicted to reduce anxiety and depressive behavior in comparison to the control. The results from the forced swim test show that experimental males spent less time immobile than control group males, but this difference was not statistically significant. We expect this pattern to hold for the open field test, with experimental mice exhibiting less anxious behavior, but not to a significant level.

How Partners' Relationship Satisfaction, Gratitude, and Love Predict Showing Appreciation

**Top 10 Poster Award Winner*

Authors: Elizabeth Engsberg, Olivia
Chapman, Hannah Hu

Adviser: Professor Jennifer
Hughes

For our project, we examined whether or not gender, relationship satisfaction, gratitude, and love would predict showing appreciation for individuals in romantic relationships. There is existing research that explores relationships between

relationship satisfaction and gratitude, or between life satisfaction and gratitude, but there is a gap in understanding how or why couples showed appreciation for each other (Algoe, 2010; Kashdan, Misha, Breen, & Froh, 2009). Examining how these factors influence showing appreciation could provide valuable insight into romantic relationships. Our sample consisted of 298 participants who lived in the United States and were in a relationship. Participants took a survey administered through SurveyMonkey. One hundred and forty-seven of the participants identified as men and 150 identified as women. We hypothesized that gender, relationship satisfaction, gratitude, and love would predict individuals in romantic relationships showing appreciation for their partners. Using multiple regression, we found support for our hypothesis in that relationship satisfaction, gratitude, and love predicted showing appreciation for one's partner with love being the strongest predictor. However, we did not find that gender predicted showing appreciation for one's partner. Our model accounted for 59.2% of the variance, $F(4, 290) = 107.62, p < .001$. Even though we have a large sample size and used reliable scales, the vast majority of participants were heterosexual and White. Future research could examine this topic by using same-sex couples or a more racially diverse participant pool.

Safe Spaces and Paces: Analyzing Stereotypic Behaviors in Malayan Sun Bears

Authors: Yasmine Green, Rhea Thomas, Sydney Snow

Adviser: Professor Bonnie Perdue

Stereotypic behaviors are actions that do not have a clear function performed by members of a species living outside of their natural environments, such as zoo enclosures. For malayan sun bears - the smallest, most arboreal of the bear species - their more prevalent stereotypic behaviors are pacing and oral behaviors. In the wild these actions align with foraging behaviors. However, Zoos provide the sun bears with food at set times throughout the day which eliminates the need to exhibit foraging behaviors. Current literature suggests the continual display of pacing and oral behaviors are a result of the animal practicing their natural behaviors likely to occur in locations the animals deem safe. In natural settings, a safe place corresponds to locations where the animal can eat, rest, and positively interact with others of their species without risk of being attacked. To expand the literature on the prevalence of stereotypic behavior displays of sun bears housed in zoo enclosures, naturalistic observations of two sun bears housed at Zoo Atlanta were analyzed for the location and frequency of pacing and oral behaviors.

Star Formation in Interacting Spiral Galaxies

**Top 10 Poster Award Winner*

Authors: Abigail Harden, Mihika Rao

Adviser: Professor Amy Lovell

By analyzing the apparent magnitude, and therefore star forming rates, of interacting spiral galaxies, and the disruption of the dust lanes, we can determine the advancement of the galactic interaction. It is estimated that the complete process of an interaction between two galaxies takes about half a billion years. When we see an example of two interacting galaxies, we are only seeing a snapshot of one stage of the evolution of the interaction. In order to get an understanding of the entire process of the interaction between two galaxies, astronomers use computer models to simulate what happens when two galaxies collide. We used the SARA telescopes to observe the galaxies using red, blue, and green filters. The images were then compiled and analyzed using MaxIm DL. After gathering the pictures of the selected objects in Red, Blue, and Green range filters we compiled the pictures and created a galaxy color-magnitude table of the stars in the galaxies. We found that the center of interaction of the Antennae galaxies and NGC 2207 and IC 2163 are both blue, while the center of interaction between the Whirlpool galaxy and its companion is red. Studying the mergers of spiral galaxies will help us better understand the fate of our own galaxy. The Milky Way is on course to merge with the Andromeda galaxy, both galaxies are similar to galaxies observed in this project.

Evaluating Faculty and Their Expectations for Applicant Research Experience

**Top 10 Poster Award Winner*

Author: S. Shayne Hargis

Adviser: Professor
Jennifer Hughes

Undergraduate students often attach relatively little importance to research experience in applying to graduate programs and put more focus on other, non-research, factors of the application process (Sanders & Landrum, 2012). For this study, we designed a survey that asked graduate faculty about the research criteria they used to accept prospective psychology PhD students and we used a series of ANOVAs to evaluate our hypotheses. The first hypothesis was supported in that we found that male faculty on the tenure track expected to see an increased amount of research, $F(1, 717) = 6.43, p = .011, \eta^2 = .01$, expected to see more independent research experience from applicants, $F(1, 715) = 7.68, p = .006, \eta^2 = .01$, and expected to see more of a research match, $F(1, 714) = 4.87, p = .028, \eta^2 = .01$. The second hypothesis was partially supported in that we found those with high research productivity expectations expected to see the most amount of research, $F(3, 713) = 11.52, p < .001, \eta^2 = .05$, expected to see more of a research match, $F(3, 711) = 16.38, p < .001, \eta^2 = .06$, and expected to see the more independent research experience, $F(3, 711) = 17.34, p < .001, \eta^2 = .07$, but we did not find gender differences. Our findings suggest potential patterns in research preferences among graduate school faculty that might allow applicants to make more informed decisions about their application process and undergraduate institutions to adapt and expand their research opportunities.

Examination of the Speed of Habituation and Behavioral Response of the Southern Ground Hornbills (*Bucorvus leadbeateri*) to Researcher Presence

Authors: Samantha Hatcher,
Emma McKeon

Adviser: Professor Bonnie
Perdue

Habituation is a process that leads to decreased responsiveness to a stimulus with repeated presentation. In a number of species, this process makes it less likely that individuals will respond to harmless stimuli. Given that previous literature suggests that southern ground hornbills are social birds, and Zoo Atlanta's claim that "our pair is very interactive and enjoys showing off for guests," there will likely be a shift in behavior towards repeated researcher presence. This shift in behavior will likely be a decreased interest in the researchers, and hence will be less likely to interact with them. The hornbills tend to be present near the enclosure windows whenever visitors are present. To expand the literature on sociability of these birds, naturalistic observations of the mated pair of southern ground hornbills housed at Zoo Atlanta were analyzed for habituation and behavioral changes to repeated and consistent presentation of the researchers at the enclosure. This research will contribute to the small, but growing, breadth of information on the southern ground hornbills.

HDAC Expression in Neurodevelopmental Disorders

Authors: Katherine Hutchison, Jordan Reed,
Nella Beardall

Adviser: Professor Jennifer
Larimore

Rett Syndrome is a developmental disorder that is characterized by a mutation in the MECP2 gene. This gene encodes for Methyl CpG binding protein 2 (MeCP2), which plays a role in the regulation of gene expression through facilitating the attachment of methyl groups onto the structure of DNA. MECP2 mutations have been shown to decrease dysbindin levels, which are associated with the developmental disorders Schizophrenia and Autism. In Rett Syndrome, as well as other neurodevelopmental disorders, learning, and memory are impaired. To better understand the full downstream effects of the MECP2 mutation we decided to look at expression of a protein that is also implicated in gene expression as well as learning and memory, histone deacetylases (HDACs). HDACs remove acetyl groups from the histone structure of DNA, and specifically in neurons it is shown to decrease neuronal plasticity, which impacts learning and memory. HDAC6 is located in the cytoplasm of the cell and implicated in heart, liver, kidney, and placenta. We tested to see if there was any difference in expression by looking at protein and mRNA levels of cells derived from two different mutations of MECP2 known to cause Rett Syndrome, as well as Dysbindin Knockdown cells and control cells. We used Western Blots to quantify the protein levels in the samples. No significant alterations in protein expression of HDAC6 were observed between the mutated cells and controls.

How did the position of women in German politics bring about change in the country? (Wie hat die Stellung der Frau in der deutschen Politik das Land verändert?)

Author: Yasmine Khan

Adviser: Professor Barbara
Drescher

How much of an impact can someone have? Enough to cause change in a society? The purpose of this presentation is to study 6 different German women who were politically active and why their involvement was vital in changing the political system of their country. Multiple political movements will be looked into such as those addressing abortion rights, voting rights, workers' rights, etc. We can then further understand why the role of these women led to change and what made their efforts so effective. It will show us similarities between these 6 women and how they all reached the common goal for change in Germany. Using this comparison of these six women will also show us how their leadership in these movements brought about change to German society from the 1848 women's movement to the call for reunification in the 1980s. With a timeline this extensive, multiple eras of German history will be addressed and provide a better understanding of the motives for these movements. By studying these women and their involvement in politics, we can understand the multiple forms of political movements, what makes them most effective and the role of those who are leading them.

Effects of Simulated Chronic Alcohol Use on Anxiety and Depression

Authors: Dennisha King, Savannah
Pittman, Calyx Bryant, Emma McKeon

Adviser: Professor Jennifer
Larimore

Anxiety and depression levels have drastically increased in recent years not only in the United States (APA, 2018), but also across the globe (GBD, 2015). Chronic alcohol use was identified as a leading risk for death, disease, and injury by the CDC in 2016, and the report also stated that in the United States, more than one in six individuals are chronic binge drinkers. The current study sought to investigate a link between modeled chronic alcohol use and anxiety and depression behavior in mice, and that this relationship would not have sex differences. We predicted that the experimental group of mice would exhibit more anxious and depressive behaviors than those in the control group. The mice in our sample were given a three percent solution of ethanol as a substitute for plain water for fourteen hours a day and plain water for five hours a day across two weeks, and then tested in a forced swim and open field test for anxiety and depression behaviors, respectively. Data were analyzed via independent samples t-tests for significance across groups and across sexes. From these analyses we found no significant data across experimental groups or by sex. However, not only did our experiment have many limitations, including a short time of ethanol treatment and inconsistent handling and video scoring, our data was also trending, suggesting there may have been significance had our limitations been eliminated.

Research Expectations for Clinical vs. Industrial/Organizational and Human Factors Programs

Authors: Mengyao Li, Elizabeth Engsberg, Erika McDonnell, Cheyenne Goss

Adviser: Professor Jennifer Hughes

We decided to evaluate the effects of research experience on graduate program acceptance for clinical programs as compared to industrial and organizational (I/O) and human factors (HF) psychology programs. We hypothesized clinical psychology faculty expect prospective graduate students to have a higher area match, more independent research, and weigh overall research experience more heavily as compared to I/O and HF faculty. We emailed a survey to 160 faculty (i.e., 73 men, 87 women) from clinical ($N = 128$) and I/O and HF ($N = 32$) programs completed the survey. After performing t tests, first, for the area match, we found that clinical faculty ($N = 128$, $M = 3.71$, $SD = 1.16$) expect applicants to have a higher match than I/O and HF faculty ($N = 32$, $M = 2.78$, $SD = 1.29$), $t(158) = 3.96$, $p = .01$, $d = .76$. Second, for the independent research experience, we did not find a significant difference between the clinical ($N = 128$, $M = 3.30$, $SD = 1.07$) and I/O and HF faculty ($N = 32$, $M = 2.94$, $SD = 1.01$), $t(158) = 1.76$, $p = .08$. Lastly, we found clinical ($N = 128$, $M = 3.64$, $SD = 0.70$) expect applicants to have more research experiences than I/O and HF faculty ($N = 32$, $M = 3.03$, $SD = 0.74$), $t(158) = 4.38$, $p = .01$, $d = .85$. The results imply the clinical faculty have higher standards regarding prospective doctoral students' research experience and for matching their research area.

How Appreciation Impacts Components of Romantic Relationships for Partners

Authors: Sidney Joines, Mengyao Li, Selena Lomeli

Adviser: Professor Jennifer Hughes

Gratitude is composed of thankfulness and kindness towards another person. Research suggests that feeling and expressing gratitude are critical facets of relationship success and happiness. We hypothesized that individuals in romantic relationships who felt appreciated would report greater (a) relationships satisfaction, (b) intimacy, (c) passion, and (d) commitment, and these would be stronger for individuals identifying as women. Using multiple regression, we found support for hypotheses b and d and partial support for hypotheses a and c. This study supports preceding research surrounding the positive relationship benefits present when partners feel appreciated. Gratitude has the potential to create a strong foundation where romantic relationships can grow and thrive. Translating actions into feelings informs behavior and creates cyclical appreciation that allows love to flourish. Future research may examine gratitude expressed between friends or family, gratitude's impact on communication between partners, and the effect of other variables such as culture or personality.

A Comparison of Clinical and Counseling-Related Graduate Program Admission Expectations

Authors: Erika McDonnell, Cheyenne Goss, Elizabeth Engsberg, Mengyao Li

Adviser: Professor Jennifer Hughes

Graduate school is often competitive, research-intensive, and involves a demanding workload, as the goal of such programs is to produce independent, highly competent researchers (Seligman, 2012). Like clinical psychology programs, counseling and counseling-related programs, such as educational psychology and school psychology, immensely value research experience, presentations, and publications in scholarly journals (Keith-Spiegel & Wiederman, 2000). This study sought to identify admissions expectations of applicants to counseling-related graduate programs. The sample comprised 74 counseling psychology, educational psychology, and school psychology faculty (62.2% women, 36.5% men, 77% White) and 158 clinical psychology faculty (55.4% women, 44.6% men, 1 did not report gender identity, 85.4% White). Participants responded to a questionnaire delivered on SurveyMonkey. After obtaining the data, we ran independent sample t tests. We found a significant difference between the counseling-related programs ($N = 61$, $M = 3.57$, $SD = 1.28$) and clinical psychology programs ($N = 128$, $M = 2.82$, $SD = 1.01$), $t(187) = -4.37$, $p < .001$, $d = .65$. We also found that clinical psychology programs ($N = 127$, $M = 4.62$, $SD = .64$) prefer more research than the counseling-related programs ($N = 61$, $M = 3.66$, $SD = 1.11$), $t(186) = -.76$, $p < .001$, $d = 1.06$. Our results speak to the differences in admissions expectations for the separate types of programs and can aid prospective graduate students in seeking out the necessary experiences to produce a competitive graduate school application in their chosen field.

Supervisors' Gratitude and Employees' Feelings About Their Supervisor and Organization

Authors: Emma McKeon, Kayla Trumbull, Ege Su Durak

Adviser: Professor Jennifer Hughes

In the present study, we investigated whether employees' perceptions of their supervisors' expressed gratitude was a predictor of employees' perceived organizational support, perceived supervisor support, affective organizational commitment, and job satisfaction. We used MTurk to recruit participants and they took online surveys. Using data from 278 respondents we ran a series of regressions. We found that those who believed their direct supervisor expressed gratitude to be positively predictive of perceived organizational support (the model accounted for 40% of the variance, $F(1, 275) = 192.10$, $p < .001$, 95% CI [3.89, 5.17]), to be positively predictive of perceived supervisor support (the model accounted for 61% of the variance, $F(1, 274) = 564.95$, $p < .001$, 95% CI [3.91, 5.20]), to be positively predictive of affective organizational commitment (the model accounted for 38% of the variance,

$F(1, 271) = 171.25, p < .001, 95\% \text{ CI } [3.19, 4.32]$), and to be positively predictive of job satisfaction (the model accounted for 26% of the variance, $F(1, 274) = 95.22, p < .001, 95\% \text{ CI } [.81, 1.22]$). Our results imply that supervisors who express support could increase employees' positive feelings about their workplace and supervisors.

The Effects of Visitor Crowd Size on Aggression in Southern Ground Hornbills (*Bucorvus leadbeateri*) **Top 10 Poster Award Winner*

Authors: Emma McKeon,
Samantha Hatcher

Adviser: Professor Bonnie
Perdue

Captivity, specifically in zoos, can have benefits and disadvantages for animal welfare (Mason, 2010). Whereas some species may benefit from being attended to in captivity, others are not, or even experience more stressful, less satisfying lives than they would in the wild (Mason, 2010). One of the factors that influences stress, welfare, and behavior in captive animals is crowd size (Kuhar, 2008; Stephens, Thyssen, Laevens, & Vervaecke, 2013). Aggression in birds is a heavily studied topic (e.g., Perdue, Gaalema, Martin, Dampier, & Maple, 2011), but the effect of crowd size on this variable has not been investigated as thoroughly. Because Southern ground hornbills (*Bucorvus leadbeateri*) are a popular bird species in zoos, and males and females are easily distinguishable, they are an excellent candidate for this research (Gentilcore & Sorenson, 2014). It is hypothesized that as crowd size increases, so will aggressive behavior in the Southern ground hornbill. If this hypothesis is supported, it will provide valuable insights to the field of animal welfare and suggest a way to decrease stress and aggression in this species in captivity.

Flux Density Variations and Radio Recombination Line Emission at 7 mm and 3.6 cm in W49A

Authors: Theresa Melo, Rowen Webb-Forgus,
Sara Sloman

Adviser: Professor Chris
DePree

Numerical models first showed that detectable flux density variations in ultracompact (UC) HII regions could occur when accretion flows around young massive stars became unstable and clumpy. Observations show that some Galactic UC HII regions do indeed vary in radio flux density on timescales of 10-20 years, consistent with the predictions of these models. We have detected such variations in the Sgr B2 and W49A regions, most recently in W49A at 3.6 cm with the B-configuration at $\sim 0.8''$ resolution. In these observations, taken between 1994 and 2015, W49A/G2 decreased by 20% in peak intensity (from 71 ± 4 mJy/beam to 57 ± 3 mJy/beam), and 40% in integrated flux (from 0.109 ± 0.011 Jy to 0.067 ± 0.007 Jy). We present new full-synthesis radio continuum radio images of the W49A region. In addition, we discuss explanations for the flux

density decrease near the position of W49A/G2, and present new high-resolution radio recombination line (RRL) data at 7 mm and 3.6 cm associated with W49A/G2 and other sources in the region.

Influence of Location in African Elephants (*Loxodonta Africana*) Weaving Behavior

Authors: Laura Millan, Alexandria Moses

Advisor: Professor Bonnie Perdue

Studying the welfare of animals, such as elephants, in captivity is important to ensure the ethical treatment of animals by creating and maintaining regulations that aim to help balance the animal's needs. Stereotypic behavior is sometimes seen in African Elephants (*Loxodonta Africana*) in captivity, possibly resulting from stress or frustration. One of the stereotypic behaviors elephants show is weaving behavior, which is characterized by repetitive movements, such as swaying or pacing, that do not have a specific function. Weaving behavior can also start early in an animal's life and continue to persist due to habit, even if there is not a stressful or frustrating factor affecting the animal. In addition, weaving behavior may only occur in specific locations, such as in specific locations of the animal's enclosure. Therefore, an observational study was conducted at Zoo Atlanta to examine if different locations within the habitat influenced the frequency of this particular stereotypic behavior.

The Green New Deal's Impact at Agnes Scott College

Authors: Lia Millar, Brittany Judson, Mallika Balakrishnan

Advisor: Professor Gus Cochran

This poster examines the ways the Green New Deal may impact sustainability initiatives at Agnes Scott College. The presentation argues that policy initiatives proposed by the Green New Deal, if implemented, have the potential to transform the role of sustainability on Agnes Scott's campus. The research conducted indicates the Green New Deal could prompt restructuring in areas from energy use to employment practices, while maintaining curricular relevance. This presentation uses a review of pertinent literature on the Green New Deal, including advocacy publications, proposed legislation, and third-party research. A review of Agnes Scott College's current sustainability practices is used to draw out related areas of potential impact. This presentation offers insight into the impact of climate change legislation on the college campus.

Influence of Enrichment in African Elephants (*Loxodonta Africana*) Weaving Behavior

Authors: Alexandria Moses, Laura Millan-Buendia

Adviser: Professor Bonnie Perdue

Some African Elephants (*Loxodonta Africana*) in captivity perform weaving behavior that is characterized as a stereotypic behavior. Weaving behavior in African elephants and Asian elephants is identified as a combination of head bobbing, swaying, and neck twisting. These behaviors are typically linked to instances of boredom, frustration, and desolation. However, evidence has shown that elephants present weaving behavior habitually once performed in one stage or another of its life and almost impossible to discontinue the behavior altogether. Contrastingly research has discussed that weaving behaviors may manifest when elephants are stressed or anxious. Efforts to improve animal welfare have been implemented such as increasing various forms of enrichment. Enrichment is a dynamic process of enhancing an animal's environment within the context of animals' behavioral biology and natural histories. Enrichment includes activities, objects, foods, and experiences that encourage natural behaviors. Zoo Atlanta enforces many types of enrichment such as environmental, sensory, manipulative, social interactions and human-animal interactions. Therefore, an observational study was conducted at Zoo Atlanta to examine whether available enrichment is related to lower instances of weaving behavior exhibited by African Elephants.

Effect of Ethanol Administration on Depressive and Anxiety-Like Behaviors in Male and Female Mice

Authors: Alexandria Moses, Samantha Hatcher,
Briana Tolman

Adviser: Professor Jennifer Larimore

Alcohol is one of the most common drugs consumed in the US. It is a sedative and depressant that affects the central nervous system, so the idea that alcohol can reduce stress, and hence reduce anxiety- and depression-like symptoms, does hold some truth. However, this potentially can cause or aggravate anxiety and depression-like symptoms. Gender differences in alcohol consumption have also been previously investigated. The basic paradigm was to administer ethanol (3% ethanol in drinking water) to male and female mice for two weeks (14 days). Tests of anxiety and depression, open-field test and forced swim respectively, was then conducted and analyzed. Data was collected and analyzed by video recordings to assist in scoring depressive and anxiety-like behavior. It was found that only female experimental mice had a significantly decreased time immobile than female control mice.

The Anomalous Redox Behavior of Cu(L-serine)₂ and Comparisons to Closely Related Cu(L-homoserine)₂ and Cu(L-cysteine)₂ Complexes

Author: Quynh Nguyen

Adviser: Professor T. Leon
Venable

Due to ambiguities in the published literature, the behavior of Cu(aminoacidato)₂ complexes was revisited. The behavior of Cu in the presence of various amino acids is of interest due to its potential role in Wilson's, Alzheimer's, and Parkinson's diseases. The reaction of [Cu(CH₃COO)₂•H₂O]₂ and the appropriate amino acids resulted in a relatively high yields (75-98%) of Cu(aminoacidato)₂ complexes. All products were isolated as air-stable solids with varying solubilities in common solvents and were characterized by UV-vis (if applicable) and FTIR spectroscopies. This project focuses on exploring the anomalous redox behavior of Cu(L-serine)₂, which is distinctively different from that of all other known Cu(aminoacidato)₂ complexes. It was found that this complex undergoes a spontaneous redox reaction in which the Cu(II) is reduced to Cu(I) and the serine is oxidized to an apparent aldehyde. The closely related Cu(L-homoserine)₂ and Cu(L-cysteine)₂ complexes were also synthesized to compare their behavior to that of the Cu(L-serine)₂ complex. The choice of these closely related ligands (10 OH group on L-homoserine, 10 SH group on L-cysteine) was used to investigate the necessity of the alcohol group, particularly the primary alcohol group, on the Cu(L-serine)₂ complex as a possible key condition for the redox reaction to occur. It was revealed that the 10 OH functional group on L-serine was not the key to its anomalous behavior since the oxidation of Cu(L-homoserine)₂ did not occur. Further analysis on the Cu(L-cysteine)₂ complex to compare it with Cu(L-serine)₂ could not be carried out due to its insoluble nature. Future labs will continue to explore other characteristics of Cu(L-serine)₂ in order to identify the key feature of the molecule that is responsible for its active redox behavior.

An Exploration into Oral Health: My Experience Interning at a Dentist Office

Author: Eleanor Pettit-Kruse

Adviser: Professor Jennifer
Larimore

Following a 16-week internship where I logged nearly 500 hours interning at a local dentist office, I was introduced to all varieties of oral health practitioners and saw the many facets of owning a private practice. Where shadowing would have limited my ability to simply observing, my internship allowed me to have a role within the practice, where I was quickly able to learn skills applicable to entry-level dental jobs, and that showed me the contributions other roles besides the dentist also make, such as the dental assistant, dental hygienist, office manager, and the resource suppliers for necessary equipment and materials. As an intern I learn how to use OpenDental, a software program that shows everything from charts to patient records to billing

information and allergies. Additionally, I learned the name and purpose for nearly every instrument and device in a typical family practice as I sterilized and set-up operatories in preparation for patients. The involved members of the practice also involved me in periodontal charting, minor-level assisting, and preparation of prosthetics for lab work.

Effects of Low Dose Ethanol on Anxiety and Depression in Mice

Authors: Dominique Rivers, Amber Mills, Laura Milan Buendia

Adviser: Professor Jennifer Larimore

Anxiety and depression are neurological disorders that can negatively influence our behavior. Alcohol is often utilized as an anti-depressant to relieve the feelings of anxiety and depression. It has been reported that alcohol impacts males and females differently. The effect of alcohol on anxiety and depression have not been fully researched. In this study, we investigate the effects of low-dose daily administration of ethanol in anxiety and depression-like behaviors between female and male mice. The mice completed two tests to examine anxiety and depression. The first being, Force Swim Test to measure depression-like behavior, and secondly, Open Field Test was performed to measure anxiety-like behavior. No difference was observed between male and female with and without alcohol. Based on the results, in mice, we see that alcohol does not influence anxiety or depression.

Altered Levels of LAMP1 Expression in RTT Model PC12 Cells

Authors: Bailea Robinson, Cameron Wheeler, Savannah Vasquez

Adviser: Professor Jennifer Larimore

BLOC-1 plays an important role in the endomembrane system and has been implicated in lysosomal function, resultant of proper LAMP1 protein function. Surface levels of LAMP1 have been shown to be significantly increased in Bloc1 deficient mice. Increased LAMP1 results in overactivation of endosomal fusion, which overwhelms the vacuoles and results in the degradation of other necessary cellular materials and proteins. MECP2 mutations have been linked to BLOC-1 defects, specifically affecting the dysbindin subunit, Pallidin. LAMP1 is known to upregulate LAMP2, which has existing implications in Rett Syndrome. Polymerase Chain Reaction (PCR) and Western immunoblotting are used to quantify RNA and protein levels associated with Mecip2 mutated cells. The results are expected to demonstrate altered expression of LAMP1 in Mecip2 mutated cells similar to LAMP1 in dysbindin. These results can be used to further demonstrate connections between BLOC-1 mutations and MECP2 mutations and their implications in the disruption of cellular processes.

Effects of Mating on Latency to Drink in *Callosobruchus Maculatus*

Author: Glenn Sayre

Adviser: Professor Iris
Levin

Male bean beetles (*Callosobruchus maculatus*) have a spikey aedeagus that damages the female beetle's genital tract. Despite this, females are known to mate with multiple males. There is evidence that suggests that the reason females mate multiply is to gain water from multiple males' spermatophores. Adult bean beetles do not require food or water in order to survive to reproduction; however, they can benefit from water intake. Here, *C. maculatus* were separated into groups based on mating status (virgin and non-virgin) and sex, and provided with a water source. We measured the latency from when the beetle was introduced to the testing arena to when it began drinking water, in order to estimate the beetles' need for water. The assumption was that the higher the motivation to drink, the shorter the latency to drink. Latency to drink was measured when all groups were virgins and then again after a seven-day waiting period in which the "mated" groups were allowed to mate. This comparison was done in order to see how spermatophore transfer during mating affects water needs after desiccation over time. It was found that there is no apparent influence of mating status and sex on latency to drink, nor was there an influence on change in mass via drinking. These results indicate that either latency to drink did not in fact serve as a good proxy for water need, or the water loss experienced during mating was not significant enough to change behavior.

Do Barn Swallows (*Hirundo rustica erythrogaster*) Leave a Signature Maculation Pattern on their Eggs?

**Top 10 Poster Award Winner*

Author: Emily Smith

Advisers: Professor Iris
Levin and Dr. Toshi
Tsunekage

Eggshells of many bird species have distinctive maculation patterns that have motivated a number of adaptive hypotheses. The signature hypothesis proposes that eggshell patterns allow females to recognize their own eggs in the face of inter- and intraspecific brood parasitism. In barn swallows (*Hirundo rustica erythrogaster*), which are colonially nesting passerine birds, 17% of nests are subject to intraspecific brood parasitism. Our research aims to better understand the range of maculation patterns on the surface of barn swallow eggs. We asked whether eggs in the same nest exhibit a "signature" maculation pattern that was quantifiably more similar to the other eggs in the nest than to eggs in other barn swallow nests. We photographed and analyzed 23 clutches of eggs, and from these data, we could identify how closely an egg resembled other eggs. We found that 31% of eggs most closely matched other eggs from the nest of origin, and 54% of eggs included an egg from the nest of origin among the top three best matches.

Our work revealed substantial variation in egg maculation patterns among barn swallow clutches, and generally provides support for the signature hypothesis.

An Analysis of The Effect of Enrichment on Activity Levels in Sun Bears

Authors: Sydney Snow, Rhea Thomas, Yasmine Green Adviser: Professor Bonnie Perdue

Malayan sun bears are the smallest species of bear. A crescent or U-shaped patch in a white or golden yellow color gives them a distinct look. In order to preserve the species and educate the public, sun bears are sometimes housed in zoos. However, in captivity, these animals have displayed stereotypic behaviors, or repetitive, invariant, and functionless behaviors. These behaviors can be due to three reasons: sustained or recurrent stimuli in internal or external environment, a coping method, and perseveration. In order to alleviate these abnormal behaviors, zoos have implemented enrichment items which increase the complexity of the enclosure and promote interactive and exploratory behavior. The use of these enrichment items and their effect on sun bear activity levels and stereotypic behaviors are analyzed in this research, which was conducted at the zoo. It is hypothesized that an increase in enrichment items will also increase sun bear activity and reduce stereotypic behavior.

Effect of Ethanol Administration in Male and Female Mice Exhibited in Depressive and Anxiety-Like Behaviors

Authors: Lisette Soto, Alexia Crockett, Laura Millan, Adviser: Professor Jennifer Larimore
Alexandria Moses, Camryn Smith, Rachel Thompson,
Cindy Aguilera

Alcohol consumption has been linked to depressive and anxiety-like behavior in humans. As well as gender differences in alcohol consumption have been previously investigated. However, alcohol effects on gender and depressive/anxiety-like behavior has not been investigated. We administered ethanol (3% ethanol in drinking water) to male C57BL/6 mice for two weeks (14 days). During the two weeks the mice were randomized and assessed in two behavioral tasks. The forced-swim test was used to measure depressive-like behavior in the mice. As for anxiety-like behavior the open-field test was utilized. Data was collected and analyzed by video recordings to assist in scoring depressive and anxiety-like behavior. An ANOVA test was used to compare the data collected from both behavioral tests regarding the male control group and male experimental group. An independent sample *t*-test analysis was used to compare female and male mice controls. Additionally, a 2x2 ANOVA analysis was designed to compare both gender and treatment (control and experimental).

Developmental Research: Phase I Development of a Curriculum to Promote Socioemotional Learning Among Young Children

Authors: Rachel Spears, Princess-Diamonds Harris

Adviser: Professor Maryam
Jernigan-Noesi

This presentation will highlight the formative research process for the development and implementation of an intervention program designed to promote social and emotional learning for young children in an early learning center environment. The primary goal of formative research is to obtain qualitative and quantitative data useful for the development and implementation of intervention programs. As such, the presentation will provide an overview of research methods and preliminary feedback from the target demographic, to ensure that the proposed curricular program is culturally-responsive and developmentally appropriate. The presentation will feature sample outlines of lesson plans pertaining to social-emotional learning (e.g., emotional regulation, empathy, and social identity) for children ages 3-5. Developmental Contextualism and the Biopsychosocial frameworks were used to inform and synthesize areas of focus (e.g., age), specify proposed topics (e.g., empathy), and guide the development of lesson plans. The project is ongoing; future goals include pilot testing and evaluation at a local early learning center. The proposed presentation is unique in that it represents best practices in applied psychology. Such research is more often discussed as an important consideration and direction of psychological studies (i.e., to develop applied psychological programs), but is less often presented formally.

Influence of Emotion on Tactile Sensitivity

Authors: Rachel Spears, Ramnik Dhingra, Princess-Diamonds Harris

Adviser: Professor Barbara
Blatchley

Emotions contribute to the way we shape our world, influencing our cognitive states, memory, perception, and physiology. Our feelings impact our perception and ability to feel touch. Thus, increased or decreased tactile sensitivity may affect one's intake of sensory information. Love is a potent emotion that can impact one's physiological state and neurological pathways. This experiment will be testing the influence of love on tactile sensitivity. It proposes that if participants are asked to elicit strong emotions of love, then they will have decreased tactile sensitivity, allowing them to have less accurate results on the two-point discrimination test. At least 10 undergraduate student participants will be randomly assigned to either the test condition or the neutral condition. Given that love is a broad emotion, each participant's subjective experience may influence their personal physiological reaction. However, in conjunction with the notion that love releases oxytocin, the body may respond to the recall of these memories through decreased arousal as vasodilation changes. Decreasing tactile sensitivity may result in response to decreased finger temperature as oxytocin changes

blood flow. An independent samples *t*-test will be used to determine the effect of love on tactile sensitivity. This study is ongoing.

An Examination of Stereotypic Activity in Malayan Sun Bears

Authors: Rhea Thomas, Sydney Snow, Yasmine Green Adviser: Professor Bonnie Perdue

Naturally found in southeastern China and northern India, the Malayan sun bear is a small tropical bear primarily found in solitude. Due to an increase in timber production, the natural habitat of sun bears is threatened, resulting in increased interest by animal sanctuaries and zoos in obtaining sun bears for breeding and study. In captivity, Malayan sun bears, in addition to other bear species, perform a number of stereotypic activities, one of which being pacing. One possible reason for these stereotypic behaviors is that they signal the stress or discomfort of the bears. Due to this, research on determining the cause as well as ways to reduce these activities have been performed. Though this research has been beneficial in learning more about sun bears, most studies have not adequately analyzed the effect that non-tropical winter temperatures have on stereotypic activities. Research on the effect of temperature, in tandem with the research on other variables, will allow for a more holistic view of stereotypic activities, and further discussions about creating more comfortable environments for Malayan sun bears.

The Role of Slc24a2 on Calcium Levels and its Effect on Rett Syndrome and Schizophrenia

**Top 10 Poster Award Winner*

Authors: Zoie Wiltz, Hannah Culbreath Adviser: Professor Jennifer Larimore

Solute carrier family 24 member 2 (Slc24a2) is a gene that encodes the sodium-potassium-calcium exchanger 2 (NCKX2), which controls the distribution of sodium, calcium, and potassium ions. Slc24a2 is included in 12 of the 111 transcripts sensitive to dysbindin-null mice, a model meant to mimic brain cells from patients with schizophrenia. This gene encodes for the exchanger involved in dysbindin-null mice and Rett syndrome (RTT) mice, both which experience epileptic seizures. When there is less dysbindin in the cell, NCKX2 is lost and the calcium levels in the cytoplasm increase which prolongs the excitability of the cell. This study investigates how calcium levels vary between RTT and schizophrenic cells. Using methyl-CpG-binding protein 2 (Mecp2) mutant gene samples of Rett syndrome models, we show that calcium levels of epileptic RTT and schizophrenic cell samples are relatively proportional and are not significantly different. Dysbindin-null, R133 & T158 mutant cells failed to normalize the excitability of Ca²⁺ specific synapses after the schizophrenic treatment: halo, clozapine, and CBD. Additionally, the neurotransmitter release from the excitatory synapses varied as the

epileptic seizures progressed. With the onset of epileptogenesis as a commodity, the Ca²⁺ levels in each cell type increased. Furthermore, implications of overstimulated neurotransmitter release contributed to a reduction in dendritic spine density and dendritic branching.

How Young Black Girls Are Discussing Racial Identity and Academic Experience

**Top 10 Poster Award Winner*

Author: Devyn Wittmeyer

Adviser: Professor Maryam
Jernigan-Noesi

Theorists contend that Black girls are mistreated in a manner consistent with racial and gender stereotypes, each of which is equally salient and negatively evaluated by society. Yet, very few empirical studies have investigated the question of how the girls are able to understand and integrate the racial and gender aspects of their identity and withstand the multiple forms of negativity (e.g., gender marginalization and racial oppression) to which they are exposed. The present study examined the socialization experiences of a sample of Black girls ($N = 14$) enrolled in the 9th grade in a predominantly White high school setting. The girls participated in a semi-structured 25-week mentoring intervention intended to provide positive racial and gender socialization experiences. Interviews investigated the following themes: (a) the girls' perceptions of their experiences, (b) the relationship of these experiences to the girls' racial identity, and (c) Black girls' racial identity, self-concepts, and perceptions of their academic experiences. Through qualitative analysis, findings indicate that participants understood that their teachers and school administration treated them differently than their White counterparts. More specifically, participants indicated that they are perceived as being "louder, more obnoxious, and dumber" than White students. Interviewees also indicated that Black students are punished more often and more significantly than White students in their school environment. Participants reported that how their peers saw them was a reflection of teachers' attitudes and beliefs. Thus, interviewees stated that if they were treated poorly by instructors, they were more likely to be perceived and treated poorly by their peers as well.

Perceptual Illusions Effect on Perception

Authors: Maria Zetina, Julianna Faletta

Adviser: Professor Barbara
Blatchley

Priming is the act of exposing an individual or animal to an object or sensation, which alters their reactions to the specific stimulus. Moreover, priming can affect the perception of an illusion as it can influence what figure an individual perceives from it. The objective of this study is to determine whether top-down processing affects perception. The sample will include approximately twenty women attending an

undergraduate institution. To gather the data an experimental study with three groups will be conducted. In one group the participants will be primed using human faces, and the other group will be primed with animal faces. Lastly, the third group, which will be the control group, will be primed with pictures unrelated to human and animal faces. After the participants are primed, they will need to identify what they perceive from an illusion. Finally, to analyze the results a chi-square test will be administered. Overall, the proposal hypothesizes that the perception of the illusions will be impacted by the photos used to prime the participants. In particular, it is speculated that those primed with human faces will be more susceptible to see humans in the illusions than those primed with animal faces as humans are more likely to identify other humans more efficiently.

Exploring Mitochondrial Dysfunction in Rett Syndrome and Schizophrenia

Authors: Weiyi Zhou, Lauren Neal, Alexia Crockett

Adviser: Professor Jennifer Larimore

Rett Syndrome (RTT) is a neurodevelopmental disorder that primarily affects females and is characterized by a mutation in the MECP2 gene, a transcriptional regulator. In addition to RTT, MeCP2 mutations have also been implicated in cases of schizophrenia (SZ), a neurological disorder that is characterized by positive and negative symptoms that affect an individual's perception of life. In SZ, MECP2 mutations have been found to affect vesicle trafficking complex BLOC-1, which includes the dysbindin subunit. Mitochondrial dysfunction has been implicated in both disorders, with an emphasis on the role of oxidative stress on the pathogenesis of SZ and RTT. Here, we explore electron transporter Cytochrome C and its potential role in the cellular dysfunction observed in the two disorders. We hypothesize that a Mecp2 mutation in rat PC12 cells and dysbindin knockdown in mouse N2A neuroblastoma cells will result in altered function of the mitochondria, evident by altered protein levels of Cytochrome C. Using cells modeling RTT and SZ, we quantified protein levels of Cytochrome C to measure the difference between wild-type and mutant-Mecp2 or dysbindin knockdown cells. Our results suggest that there is no significant difference in protein levels of Cytochrome C between control cells and experimental cells. Our study provided novel information on the function of mitochondria in the two disorders. Our results, along with future research may provide a new therapeutic avenue for researchers to focus on developing more effective treatments for each disorder.

Presentation Session, 10:30-10:50
(in alphabetical order of first author)

Leadership to Me Mini Documentary: LLC 3

Authors: Adedayo Ajanaku, Zoe Katz, Tasha Griffin,
Amy Yarin, Shelby Nemhauser, Jane Krause, Che Carter

Adviser: Professor Daisy
Bourassa

Location: Bullock 209B W

Leadership House (LLC) Students will be presenting a short documentary reflecting on their time in the house and how it has shaped their new views on leadership. The documentary will explore students' ideas of leadership prior to joining the house and how they would define it today, how their professor dinners and the "Strengths Quest" questionnaire have influenced those changes, and what type of leader they believe they are after their year in the house. The documentary allows the students to reflect on the value of their time in a living learning community and their takeaways from the opportunity.

Who's Got the Power: Men vs. Women in Rap Music

Author: Yasmin Edwards

Adviser: Professor Tracy
Laird

Location: Bullock 209A W

Rap music has become a platform to discuss issues within the African American community and at times a source of controversy. For example, between the late 80s and early 2000s, gangsta rap's use of destructive and misogynistic language came to dominate many scholarly and popular discussions. Through musical examples by male artists like Tupac (2Pac) and female artists like Queen Latifah, the use of degrading slang is analyzed from sociohistoric perspectives. The presence of derogatory language against women of color in rap music during this era reveals power dynamics that intersect race and gender.

Swiping for What? Perspectives on Mobile Dating Apps Among College Students

Author: Claire Kippelen

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

This study examines college student use of mobile dating apps in how they are used, perceived, and culturally accepted. Through convenience sampling, 39 students between the ages of 18 and 25 from Agnes Scott College completed an online survey pertaining to their preferences and beliefs about dating apps. A focus group consisting of five participants was conducted to gain deeper insight into why students use these apps and potential sociocultural impacts. In this presentation, interpretivist theory will guide examination of how students regard dating apps and make meaning from them, while contemporary feminist theory will be used to better understand how gender plays a role in their use. This research is significant because mobile dating apps represent a relatively new phenomenon that is shaping how individuals interact personally, romantically, and sexually in our society.

It's L.I.T. - Libraries' Incorporation of Technology

Author: Kamiyla Lane

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

This project investigates the incorporation of technology in the children's sections of libraries. Key questions included: Are children using electronic devices more for learning purposes or entertainment purposes? How often and how long are children using electronic devices? How many children choose electronics, toys, books, and other forms of play? The study took place at a local library in the Atlanta, GA area. The purpose of this research is to bring awareness of how electronic devices in libraries affect children. The research methods used for this study include: an interview with a youth services librarian and an online survey of parents/guardians. The research generated mixed results on if children use technology in library settings, but findings suggest that children prefer to use technological devices over other forms of play.

Day-time Difficulties: A History of Commuter Students at Agnes Scott

Authors: Sophia Malikyar, April Araiza, Jasmine Berry,
Onna Biswas, Eman Khwaja, Aysha Rahman, Amandla
Williams, O'lisa Yaa Waithe

Adviser: Professor Robin
Morris

Location: Bullock 102 W

Day students, now referred to as commuter students, have had a presence on Agnes Scott College's campus since its founding as the Decatur Female Seminary. In the last 130 years, commuter students have on average made up about 25% of the student population. Agnes Scott first catered to commuting students; however, when the college shifted its efforts towards becoming a primarily residential campus in the late 1930s, resources for commuter students declined. Commuter students therefore had to advocate for their own needs, which the school's administration did not otherwise consider. The research conducted by this group, gained from alumnae interviews, yearbook and student newspaper stories, and alumnae and trustee reports, have indicated that issues that commuters have faced in the past are still very relevant today. This presentation argues that commuter student history contributes a crucial perspective on a largely ignored student populace and provides a basis for addressing their needs in the present and in the future. Considering that these students have been involved in academic, recreational, and legislative affairs on Agnes Scott's campus, they are an integral part of the Agnes Scott community and deserve recognition from the campus as a whole.

LDR 200: Designing a Healthy Campus

Authors: Samiha Ross, Esther Lovelace,
Rose Bourne, Zaina Anwer

Adviser: Professor Amy
Patterson

Location: Bullock 210 E

In this session, students enrolled in the LDR 200 class will present their proposals for enhancing physical, mental, and social health through modifications to the Agnes Scott campus built environment. The students in the class have worked in teams throughout the semester to review existing literature from the fields of public health, architecture, and urban planning, as well as to collect data from members of the Agnes Scott community on the ways that the built environment affects faculty, staff, and student health. Students will provide an overview of their research findings from a campus-wide survey and photovoice research. Students will also discuss the ways that these findings informed their proposals.

Does female size affect male mate choice in bean beetles (*Callosobruchus maculatus*)?

Authors: Emily Smith, Gwen Kirschke,
Clara Drummund

Adviser: Professor Iris
Levin

Location: Bullock G09 (Teasley)

Female size is an indicator of quality in insects because larger females often have higher fecundity. Therefore, males should prefer to mate with larger females due to their ability to produce many, high quality offspring. However, mating with females much larger than a male's own size can be difficult, especially in a system where optimal mating frequency differs between the sexes and females can resist mating. This study examines male mate choice based on relative female size (large/small) in the bean beetle (*Callosobruchus maculatus*), as well as spermatophore investment in the chosen mate. We presented virgin male bean beetles with a choice of two virgin females that differed in size (mass), and predicted that males would attempt to mate with larger females more often than smaller females. Additionally, we predicted that males would transfer larger spermatophores during successful matings between males and relatively large females. However, we expected that the male would have the most success mating with females closer to his own size, as females will kick to remove males attempting to mount them. The results show that the number of mountings, which were used as a proxy for male preference, did not differ by female size category, but that males mated with smaller females slightly more often than expected by chance. The male's spermatophore investment did not differ with the size of the female. This suggests that males might mate differentially based on female size, but not necessarily in accordance with our predictions.

Language in Martinique: The Power Struggle Between French and Creole

Authors: Chandler Spaulding, Stella John, Laura Rogers,
Deja White

Adviser: Professor Philip
Ojo

Location: Bullock 103 W

For hundreds of years, Creole was a popular form of communication in Martinique; however, its prominence fell as the opportunity to learn the French language grew. This presentation focuses on language in Martinique, from the development of Creole as a result of interactions between Europeans and Africans and its history among slave society, to the rise of the usage of French and the decrease in the number of Martinicans speaking Creole. We will examine factors for the downturn in its popularity and the unintended consequences. We will also assess the current revitalization efforts in

Martinique and worldwide to encourage more people to use Creole in order to prevent its extinction.

Determining Radioactive Isotopes According to The Amount of Cerenkov Light

Author: Ruotong Zhai

Adviser: Professor Nicole
Ackerman

Location: Bullock 112 W

Radioactive isotopes are widely used in cancer treatment. Determining the distribution of isotopes in tissue facilitates both therapy development and individual patient treatment. In our research, we aim to develop an imaging method, which utilizes the material dependence of the amount of Cerenkov light produced by radioactive isotopes. Cerenkov light is generated when charged particles travel faster than light in transparent material. Because the speed of light in the material depends on the index of refraction of the material, the amount of Cerenkov radiation depends on indices of refraction. The amount of Cerenkov light would also depend on the energy of the particles that generate it. Thus, the amount of Cerenkov photons can act as a bridge to help us determine the type of isotopes as a function of material. For a given geometry, we have a straightforward way to determine the amount of known isotope in the tissue: by solving linear equations. One future development will be to change the shape and size of the slab to see how it will affect our result.

Presentation Session, 10:55-11:15
(in alphabetical order of first author)

M.O.R.E Moms: The Impact of Social Support Programs on the Experience of Postpartum Depression for Low Income Mothers

Author: Olivia Ancrum

Adviser: Professor Amy
Patterson

Location: Bullock 210 E

The M.O.R.E. program started in 2005 with a purpose of providing free services for pregnant women and mothers living in DeKalb county with an infant less than one year old. The goal of the Mother's Offering Resources and Education program is to reduce the alarmingly high number of infant deaths in the Metro Atlanta area by offering a package of free services including lay health workers, community-based resources, as well as expert knowledge on SIDS, car seat safety and breastfeeding. Under faculty direction, we have conducted qualitative research to determine how the program has impacted women's lives and how the platform helps mothers face daily challenges. We have found that the benefits of social support are numerous. Specifically, the unique position of lay health workers to instruct women on the risks of unhealthy maternal and prenatal behaviors. In addition, M.O.R. E's lay health workers have promoted emotional well-being for their clients. Rich data obtained in the form of in-depth interviews and focus group discussions reveal the potential for M.O.R.E and lay health workers to address postpartum depression and anxiety disorders for low income women of color. This is important for the wellbeing of the mother and child whom are often faced with the stress and consequences of living within a cycle of poverty. During preliminary analysis we have identified the potential of lay health workers to provide mental health care and emotional support for low income women of color, which has possible benefits towards improving maternal and infant mortality rates in Georgia.

Treatment-Seeking for Mental Health in the Atlanta Bengali Community

Author: Onna Biswas

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

Seeking mental health assistance can be quite challenging, especially for those from immigrant families or to those with less knowledge and understanding about mental health. This study focuses on understanding Bengalis and their understanding about

mental health across and amongst intergenerational age groups. When confronted with mental health challenges, many Bengalis seek guidance from a non-medical, and medical specialist for their loved ones or themselves, while others resort to more traditional remedies like seeking help from priests, gurus, and others. This paper gives an overview of existing knowledge about mental health (such as anxiety and depression) amongst Bengali immigrant communities. It includes knowledge about both the views of traditional healing practices and biomedical care across the generations. Finally, it compares care-seeking preferences for anxiety and depression between younger adults (18-39 years old) with those of older adults (40+ of age) based on an online survey and in-depth individual interviews.

Museum Accessibility Among Different Socio-Economic Groups

Author: Logan Douglas

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

This research analyzes specific barriers to entrance at the High Museum of Art in Atlanta, Georgia, based on socio-economic status. Existing literature shows that entrance barriers like ticket fees, parking and transportation costs, and the ability to take time off of work impact low-income people more than middle- or upper-class people. For this project, over 240 people completed a survey or participated in interviews assessing the factors which may affect people of different socioeconomic classes' access to museums, and how often and why people do or do not attend museums. Interviews with museum staff were held to determine what steps have been made to broaden access to museums and if unequal marketing to different socioeconomic groups impacted museum attendance. This research provides the knowledge necessary to enact the first steps towards making museums equally accessible to all, regardless of socioeconomic status.

Being the Scapegoat: Perception of Marginalized Communities

Authors: Isabel Gaspar, Sydney A. Osei Tutu, Sydney
Marie Turner, Madison Brown, Makayla Moore

Adviser: Professor Mina
Ivanova

Location: Bullock 209B W

How was the quality of Roma education shaped before the perceptions of the Bulgarian people came into place? The Roma have been established as a marginalized ethnic group in Bulgaria, the country of interest in this presentation, and treated as such since their arrival. Cultural gaps and the educational disparities that are present, as well as the legal segregation that the Roma face all illuminate their exclusion from Bulgarian

society. Institutionalized discrimination impacts marginalized ethnic and racial groups' educational opportunities, like both the Roma and African-Americans, respectively. In turn, parallels between these two marginalized communities will be drawn and the government education programs' inconsistencies will be analyzed. This presentation focuses on the stark difference in quality concerning educational institutions and the achievement gap between the Roma minority and Bulgarians, placed in the context of case studies and the personal experiences of five students who traveled to Bulgaria during the Spring of their first year.

The Cause of Faint Coronal Jets from Emerging-Flux Regions in Solar Coronal Holes

Author: Abigail Harden

Adviser: Professor Amy Lovell

Location: Bullock 112 W

Coronal jets are transient thin bursts of magnetically channeled solar material from the surface into the corona. They are brightest at their base, with a bright point (jet bright point, JBP) at an edge of the base. Early studies (Shibata et al. 1992) suggested that jets result from magnetic flux emergence: a small bipole emerges into unipolar ambient field, driving the jet and forming the JBP via interchange reconnection. More recent studies, using higher-cadence, higher-resolution, and broader wavelength coverage than before, show that prominent coronal jets are usually driven by a minifilament eruption (Sterling et al. 2015), and that, rather than flux emergence, flux cancellation usually prepares and triggers the eruption (Panesar et al. 2016). Here, we analyzed eight emerging flux regions to determine whether the emerging flux directly drove any coronal jets. We used EUV images from the Solar Dynamics Observatory (SDO)/Atmospheric Imaging Assembly (AIA) (in 304, 171, 211, 193, and 94 Å channels), and magnetograms from SDO/Helioseismic & Magnetic Imager (HMI). All eight regions produced jet-like features that were weak in intensity ("faint jets"), by which we mean they were so faint that we likely would not have identified them as jets had we initially searched for jets in AIA movies alone (as in, e.g., Panesar et al. 2016, Moore et al. 2013) without knowing whether the base was an emerging bipole. In seven of the eight regions, all jets (faint or prominent) erupted from locations where one leg of the emerging bipole was evidently canceling with an ambient opposite-polarity flux clump. The eighth case, the one that had the fastest flux emergence, possibly made faint jets by the flux-emergence mechanism, but these too might instead have resulted from flux cancellation

The Relationship of Jews and Pirates in the Development of Colonial Jamaica

Author: Zoe Katz

Adviser: Professor Robin
Morris

Location: Bullock 102 W

In Colonial Jamaica, Jews and pirates coexisted and created a reciprocal relationship to develop a fledgling colonial economy. Pirates took shiploads of wealth from Spanish treasure galleons, then sold it to Jewish merchants, who then sold it onward for profit. Jews sponsored pirate ships to return to the sea and collect more to sell. As a result, these groups created a thriving economy that allowed both groups the freedom they desired. This research argues that together, Jews and pirates developed a symbiotic relationship that created a thriving mercantilist society in Early Colonial Jamaica. This relationship allowed both parties to gain legitimacy and freedom in the English Colonial Period beginning in 1655. Written for the Agnes Scott College History Senior Seminar, *Pirates, Jews, and Pirate Jews* tells the parallel histories between two historically 'othered' groups. Following the written paper, Zoe Katz then turned *Pirate Jews* into a digital history website and video series using her digital portfolio. This presentation will demonstrate the creation and communication of the story of Pirates and Jews in Colonial Jamaica through digital mediums such as video and website, allowing Katz to demonstrate her passion for digital history and history communication.

Relative Rates of Parasitism of Butterflies on Non-native vs. Native Host Plants

Author: Gwen Kirschke

Adviser: Professor Iris
Levin

Location: Bullock G09 (Teasley)

Monarch butterflies (*Danaus plexippus*) rely on milkweed plants to reproduce. To aid in conservation efforts, gardeners typically plant a non-native milkweed, *Asclepias curassavica*. In the southern US, this plant is potentially problematic because it provides a previously unavailable fall host plant that could lead migrating monarchs to resume breeding. Furthermore, this host plant is associated with high rates of infection with the parasite *Ophryocystis elektroscirrha* (OE), known to negatively impact monarch fitness. *Asclepias curassavica*'s late senescence and high levels of secondary compounds (cardenolides) could allow monarchs with OE to infect successive generations. We recently discovered that monarchs and queen butterflies (*Danaus gilippus*) also reproduce on the native milkweed *Asclepias perennis* in fall and winter in Florida. *Asclepias perennis* is evergreen there and, like *A. curassavica*, has high cardenolide levels. Our research seeks to understand the use of *A. curassavica* and *A. perennis* by monarchs and queens, and the rates of OE infection in these populations. We are

conducting monthly field surveys of *A. curassavica* and *A. perennis* sites in north and central Florida to document plant phenology, biomass, and the presence of immature and adult monarchs and queens. Egg samples are periodically collected, reared in the lab, and tested for OE to estimate infection rates. Our survey results indicate that monarchs and queens are using both milkweed species throughout the year, although plant phenology and butterfly densities vary. Understanding these dynamics, in combination with OE rates, will inform land management and garden planting recommendations.

Presentation Session, 11:20-11:40
(in alphabetical order of first author)

“Oddly Satisfying?” Potential Visual Stimuli for the Autonomous Sensory Meridian Response

Author: Alice Edwards

Adviser: Professor Barbara
Blatchley

Location: Bullock 209A W

The autonomous sensory meridian response or ASMR has recently become the subject of scientific study. The response is characterized by a pleasant “tingling” sensation around the head caused by certain triggering stimuli. ASMR has become a viral phenomenon, with millions of videos containing a variety of triggering stimuli uploaded to various social media sites. The response is typically associated with auditory stimuli, particularly soft and whispering voices. Most research into the phenomenon and its mechanisms has focused on the auditory triggers, but this ignores the fact that there are often visual stimuli in the videos and trends in these stimuli suggest they might play a role in triggering the response. This experiment investigated these potential visual triggers for ASMR and Flow, a similar psychological state, by comparing responses to the ASMR-15 index and Flow Short Scale in individuals after watching a video containing potential ASMR triggers or a neutral video. Eye tracking data was also collected to determine themes of what elements of the video were drawing attention and potentially triggering ASMR or similar responses. The experimental group had a higher average total score on the ASMR-15 as well as higher average scores on the Sensation and Affect Subscales. For all scales and subscales, there was a higher variance in the responses experimental participants than control participants. Additionally, preliminary analysis of the eye tracking data indicates trends in video elements that drew focus of participants.

Gender Disparities in Knowledge and Attitudes of Intimate Partner Violence and Homicide Risk Factors

Author: Clementine Ellis

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

Are cisgender individuals, age 18-25 attending a college or university, aware of specific risk factors for Intimate Partner Violence/Homicide (IPV/H), and how is this knowledge

influenced by gender identity? This presentation centers around the level of knowledge, as well as the attitudes and perceptions certain groups have surrounding IPV and IPH risk factors. This is a comparative analysis of cisgender men's and women's knowledge, attitudes, perceptions surrounding these risk factors, and surrounding IPV/H in general. This study found that, in general, there was no significant difference between cisgender men's and women's perceptions of IPV/H risk factors. Additionally, this presentation will cover the impact of formal and informal educational experiences related to IPV/H on perceptions of risk factors. This research has the potential to be used in multiple different settings and contexts to shape educational curriculum.

Carnival as a Global Festival

Authors: Lauryn Ewens, Jenae Tribbett-Talley, Camryn Tucker, Sydney Wilson

Adviser: Professor Philip Ojo

Location: Bullock 103 W

Carnival is celebrated throughout the Caribbean and Latin America, but each country seems to put its own twist on the festival. Just like our own cultural holidays in the West, Martinican Carnival has its own set of religious and cultural ties that make it unique. The aim of our research is to look at the religious and cultural significance of Carnival in Martinique and find commonalities between traditions practiced during Carnival in other countries that recognize and celebrate the festival that go deeper than the mainstream images of Carnival that are typically portrayed in media.

Acceleration of Water Molecules in Comets

Author: Brynn Presler-Marshall

Adviser: Professor Amy Lovell

Location: Bullock 112 W

Comets are small, icy planetesimals that formed in the outer regions of the proto-planetary disk and are some of the oldest objects in the solar system. They consist primarily of water ice and other volatiles that sublime near the sun, along with rock fragments. Studying the composition and behavior of comets is crucial to understanding the composition and evolution of the solar system, as well as for probing interactions with the solar wind and interstellar medium. Water molecules are photo-dissociated by solar UV radiation, which results in water vapor being broken into hydrogen and hydroxyl. The spectral lines of the hydroxyl molecules are then studied through 18 cm radio observations from the 100-meter Green Bank Telescope and the 305-meter Arecibo Observatory which allows for mapping and modeling of the gas coma. We present here a model for the acceleration of the water and hydroxyl molecules in the

comet C/2009 P1 (Garradd) in the hope of making a better physical representation of the coma and the gas production rates. Garradd was observed over a wide range of heliocentric distances, from 2.8 AU to 1.5 AU, thus allowing for the study of the dependency of acceleration on heliocentric distance.

LDR 200: Designing a Healthy Campus

Authors: Arianna Pullin, Jordyn Krumm,
Claire Moore, Rida Naseeb

Adviser: Professor Amy
Patterson

Location: Bullock 210 E

In this session, students enrolled in the LDR 200 class will present their proposals for enhancing physical, mental, and social health through modifications to the Agnes Scott campus built environment. The students in the class have worked in teams throughout the semester to review existing literature from the fields of public health, architecture, and urban planning, as well as to collect data from members of the Agnes Scott community on the ways that the built environment affects faculty, staff, and student health. Students will provide an overview of their research findings from a campus-wide survey and photovoice research. Students will also discuss the ways that these findings informed their proposals.

Trauma and Silence in No-No Boy: An Interdisciplinary Reading

Author: Yuxin Zheng

Adviser: Professor Philip
Ojo

Location: Bullock 103 W

Depicting the rugged reintegration of Ichiro Yamada, a no-no boy imprisoned during WWII, Japanese American author John Okada presents a traumatized and conflicted Japanese American community during the mid-1940s in his novel *No-No Boy* (1957). Applying Dan McAdams' psychological theory to their literary study of the novel, Floyd Cheung and Bill Peterson demonstrate that an interdisciplinary approach can "provide inspiration for different disciplines in the academy to view Asian American experience in new and exciting ways" (213). Using an interdisciplinary approach as Cheung and Peterson did, I draw on recent clinical studies on Japanese American psychology to examine how characters in Okada's novel experience and cope with the trauma of WWII and incarceration. Deeply affected by trauma, they exhibit eccentric behaviors, experience depressions, and express negative emotions. While silence helps them temporarily evade from trauma, it also leads to negative consequences. Under this interdisciplinary lens, *No-No Boy* is not simply a forceful piece of Asian American literature, but also a realistic account of how war and social injustices affect the psychology of Japanese Americans across generations.

Presentation Session, 11:45-12:05
(in alphabetical order of first author)

Perspectives on the Past: Bulgarian History and Nostalgia

Authors: Ash Busick, Journey Bradham, Ashtyn
Cameron, Rylee Reeves, Sydney Roth, Kathryn Turnbull

Adviser: Professor Mina
Ivanova

Location: Bullock 209B W

Bulgaria's relationship to the past is complex and full of both discomfort and nostalgia. While there on our Journeys trip, we saw Roman ruins, Ottoman Empire influences, World War Two artifacts, and Communist memorabilia. Through art and statues we will explore Bulgaria's history and related nostalgia. We will discuss how people relate to their history, and who is allowed to do so. Through visual and narrative analysis, we will discuss public opinion and rhetoric surrounding some of the contested statues, art, and memorabilia.

Metabolite and Microbial Composition Drivers During a Florida Red Tide Bloom

Author: Gabriella Chebli

Adviser: Professor Iris
Levin

Location: Bullock G09 (Teasley)

Interactions between bacteria and phytoplankton drive marine biogeochemical processes and compose the foundation of marine food webs. However, the diversity and chemical basis of these interactions remain largely unknown for most natural communities. This study focused on the phytoplankton-bacteria linkages of the red tide-causing dinoflagellate, *Karenia brevis*, given the recent environmental and economic problems resulting from harmful algal blooms (HABs) in the Gulf of Mexico. We characterized the microbial taxonomic and metabolomic diversity associated with the *K. brevis* HAB off Sarasota, Florida in June 2018, collecting coastal seawater samples spanning non-bloom to high bloom conditions. Samples were size-fractionated to separate free-living microbes (0.2-3.0 μm fraction) from those potentially attached to *K. brevis* or other larger particles (3.0-30 μm , >30 μm fractions). Illumina[®] sequencing of the 16S rRNA gene revealed significant differences in community composition among size fractions. Similarly, metabolomics by ¹H NMR spectroscopy revealed clear separation of metabolite profiles among size fractions. Microbial taxonomic and metabolic composition was not significantly related to *K. brevis* concentration. These results suggest that microbial lifestyle (free-living vs. particle-associated) is a stronger

determinant of community diversity and chemistry compared to the bloom state, at least at the bloom levels sampled here. However, network analysis of our taxonomic data identified significant linkages between *K. brevis* and a subset of bacterial taxa, thereby suggesting targets for follow-up studies. Such studies will benefit from integrating metabolite profiles that can help identify the chemical basis of bacteria-algae interactions.

Stressors that Affect the Athletic Motivation and Overall Well-being of Student-Athletes at Agnes Scott College

Author: Nicole Gilkeson

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

Many challenges face student-athletes that typically go unseen by the campus body as a whole. One of these obstacles includes maintaining a healthy relationship between athletics and academics in order to achieve in both arenas. This balancing act is one that causes intense stress on student-athletes and has the potential to harm the well-being of the individuals. The well-being of the student-athlete also depends on the acceptance of their dual identities as students and athletes within their social groups and among their non-athlete peers. This research seeks to understand the motivators of collegiate student-athletes, hindrances that lead to a decrease in a student-athlete's motivation, and how their interactions with the campus body can impact their motivation. This research attempts to build a greater understanding of how student-athletes are perceived by their non-athlete peers, if these perceptions impact the overall campus climate, and if those aspects shape their athletic motivation. Participants were recruited from Agnes Scott College through a stratified random sampling method of two cohorts: student-athletes and non-athletes. Surveys were administered for both groups and focus groups were conducted following the completion of the surveys. Overall, findings suggested that while discord between the two groups does exist, these conflicts do not seem to impact the athletic motivation of student-athletes. In this presentation, social conflict and postmodern conflict theory are employed as a lens to help understand how conflicts have the potential to surface from imbalances of resources and power as well as the domination and sub-domination of groups of people.

Food and History: An Exploration of Martinique

Authors: Jacqueline Hernandez, Lydia Knowles,
Mahzuza Rahaman, Caroline Flunker

Adviser: Professor Philip
Ojo

Location: Bullock 103 W

Using information gathered, both through research and first hand, during and after our Journeys trip to Martinique, this presentation will examine the intertwined relationship between Martinique's food and its history. With a mixture of African, Native American, Asian, and French influences, the Creole cuisine and the local vegetation mirror and serve as archival tools to closely study the complicated and rich history of the island. Through this lens, we are able to see the métissage and antiquity of the island as clearly as one would through its people or a book.

Agnes Scott: First Generation College Student Experiences

Author: Iman Ramadan

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

Being able to attend college represents hope for academic achievement and future success for a whole family, and college graduation is a major milestone for most students who identify as first generation college students. This presentation explores the experience of first generation college students and academic success, barriers, support, faculty and student relationship, racial disparities, and the overall college experience. Data were collected through two focus groups and a survey of students at Agnes Scott College. In this presentation, the social theories of Fanon, Dubois and Collins will be utilized to examine the experiences of first generation college students in sociopolitical context. This research allows Agnes Scott to better understand the experience of the students as well as opens an opportunity for growth in programming and support for first generation college students at our college.

Life is in the Song

Author: Kierstynn Schulze

Adviser: Professor Willie
Tolliver

Location: Bullock 102 W

Six years ago, my dad began volunteering for Eddie Owen Presents (EOP), a live music venue in downtown Duluth. Shortly afterwards, he started bringing me to shows, and I was immediately drawn in by how tight-knit yet welcoming the community was. Stepping into the Red Clay Theatre feels a lot like coming home, and this is largely due to Eddie Owen, the founder of EOP, who will share a bottle of whiskey and endless stories with anyone who walks through the front door (as long as they are of legal drinking age). Over the years, I have only become more and more impressed with

Eddie's generosity and success. He has not only shone the spotlight on some incredible talent, including Shawn Mullins, Matthew Kahler, Michelle Malone, John Mayer, The Civil Wars, and Sugarland, but also maintained long-lasting, genuine relationships with almost all of the artists he has encountered since he began booking acts for Trackside Tavern nearly 30 years ago. I created this documentary to showcase the uniquely familial community Eddie has fostered and explore what makes EOP different from other venues on the music scene today.

Centering Indigenous Epistemologies in Astrophysics Education

Author: Rowen Webb-Forgus

Adviser: Professor
Christopher DePree

Location: Bullock 112 W

The lack of diversity in science, technology, engineering, and mathematical fields has come to the forefront in discussions on the future of STEM. While there is much talk on why and how certain groups are excluded from STEM fields, little focus has been placed on the role of science history and science philosophy. In STEM education, students are usually taught that “science” began with Greek scholars, and later Europeans continued the scientific endeavor. In this narrative, “science” is an inherently Western concept, with little room for the contributions made by people of African, Asian, Pacific Islander, or Indigenous/Aboriginal origins. Ignoring the scientific contributions made by non-Western scholars and disregarding the various ways science has been done further marginalizes under-represented groups and widens the diversity gap in STEM. In an effort to highlight the contributions made by non-Western scientists, this project emphasizes Indigenous ways of doing science, with a focus on place-based, relation-based education. This work will culminate in a lesson plan for an introductory (100-level) astronomy course that centers Indigenous students and Indigenous epistemologies.

Lunch Reception for Presenters, sponsored by Student Life
12:15-1:00, Teasley Lobby

Dance Performances, Gaines Auditorium, Presser Hall
12:15-1:30
(in alphabetical order of first author)

There and Back Again

Author: Alaska Matthews

Adviser: Professor Bridget
Roosa

There and Back Again is a six-minute duet choreographed by Alaska Matthews for their senior seminar project. The piece is performed by Anoushka Pant and Inaara Dharani, and represents the struggle of being there for others and giving time and energy towards their problems, but being unable to accept that same care when others offer it. The performers work together and individually to communicate the fear, desperation, and loneliness that comes both from suffering as someone who cannot accept help, and someone forced to watch as their friend struggles alone.

Anoushka is a junior and pursuing a major in Dance and Business Management. Dance is her first love. She is the happiest when she's dancing, and dance has become a binding force in her life that helps her keep herself together. Whenever she goes to the studio, or she is rehearsing somewhere else and even when she on stage - she forgets about all her worries and tensions - she is just truly in the moment living it to the fullest!

Inaara Dharani is a first year who planning to major in Neuroscience and Dance and minor in Chemistry on the Pre-Medicine track. She dances because it has always been a passion of hers since she can remember. She has been Bollywood and Indian classically trained. In her spare time, she likes to photograph landscapes and read Harry Potter.

Pathos

Author: Julia Miller

Adviser: Professor Bridget
Roosa

This dance performance plays with chance and uncertainty to emulate how these elements interact with our interpersonal relationships. In this piece, dancers will exchange four envelopes, randomly dispersing them. They will later open up these envelopes, and their movement will be dictated by the contents of the envelopes.

There are 10 different ways the dance could be performed depending on the outcomes of the envelopes. This piece will challenge the dancers by requiring them to remember different phrases for each outcome, but also the choreographer to create a cohesive dance no matter the outcome. The random nature of this performance will be used to emphasize the randomness involved in personal relationships.

FIS/SION

Author: Julia Miller

Adviser: Professor Bridget
Roosa

FIS/SION explores elements of African dance, while also honoring traditional modern dance giants such as Doris Humphrey, Martha Graham, and Merce Cunningham. The resulting dance is a high-energy celebration that never quite stops. As implied by the name, FIS/SION takes two seemingly separate traditions and merges them together. Choreographed and performed by Julia Miller '19 and Kaitlyn Mills '21.

Intent / Impact

Author: Lane Pigford

Adviser: Professor Bridget
Roosa

“Intent / Impact” is choreographed by Lane Pigford '21. This piece involves the phrase “The road to hell is paved with good intentions” and how people with a “hero” complex don’t always get their desired result. There is an underlying sense of longing for acceptance with a notion for going through any obstacles necessary for the ideal outcome. This piece is open for interpretation. This is performed by Naomi Hill '21 and Emeline Sharpe '22.

unmaking

Author: Brittany Randall-Neppl

Adviser: Professor Bridget
Roosa

“unmaking” is a dance piece choreographed by Brittany Randall-Neppl '20 in collaboration with the dancers. This piece is performed by Madeline Braggalla '20, Jane Krause '21, Anoushka Pant '19, Camryn Tucker '22, and Jules Wilder '21. “unmaking” was created to address ideas of body image and self-perception in relation to societal norms and expectations. Through a process of research, self-reflection, and discussion with the cast, the choreographer has used this piece to explore the ways in which our

positions in society map themselves onto our bodies and how we think and feel about ourselves.

The Annual Scottie Math Bowl, Lower Evans Dining Hall
12:15-1:30
(official rules)

Each team will consist of four members, at most two of whom can be a junior or senior math major. Contestants are allowed to use paper and pencil, but no calculators.

Four teams will compete in two semifinal matches - the winners will advance to the finals.

The game proceeds by a series of rounds.

A round starts with a toss-up question. The first person to buzz in must answer the question without help from teammates or the audience. This person will then have 10 seconds to answer the question.

A contestant may buzz in before the question has finished being read, but the announcer will not finish reading the question.

A correct answer to a toss-up question will earn 2 points for your team and qualify your team for a bonus question (see below). An incorrect answer will cost your team 1 point and a new round is started.

If no contestant has buzzed in 10 seconds after the toss-up is read the game will proceed to another toss-up.

Each correct toss-up is followed by a bonus question for that team. The team may confer on the bonus question, and will have 30 seconds to respond. A correct response earns 4 points. There is no penalty for incorrectly answering a bonus question. The game will proceed to another toss-up.

Each semifinal will consist of 12 rounds. The final will consist of two 8-round halves. A panel of esteemed judges will determine the validity of a response. Decisions of the judges are final.

Have fun! (Yes, it's an official rule.)

Chamber Music Ensemble, MacLean Auditorium, Presser Hall
1:00-1:45

Theatreworks, Winter Theatre, Dana Fine Arts Building
1:30-2:00

Presentation Session, 2:00-2:20
(in alphabetical order of first author)

How Corruption Factors into Wealth Disparity in Bulgaria

Authors: Olivia Chapman, Morgan Barnett, Claudia Belfiore, Siuloong Englander, Catherine Ortega

Adviser: Professor Mina Ivanova

Location: Bullock 103 W

Walking over the golden cobblestone of the roads of Sofia, it seems impossible to imagine that Bulgaria is seen as one of the poorest nations of the European Union with nearly 35% of the population living in poverty. Even during the communist regime of enforced equality, Bulgaria has struggled with the issue of wealth disparity, which has only been exacerbated by the economic transition to capitalism. Currently, the top 20 percent of Bulgarians make 5.2 times as much as the lowest 20 percent. An important factor in aggravating existing wealth inequality is the widespread corruption that has left Bulgarians distrustful of the government, as they struggle to make a living in the current economic conditions. Students that traveled to Bulgaria as a part of Global Journeys were able to witness firsthand how this wealth disparity presents itself in the different communities of Bulgaria. The objective of this presentation is to explore how the chronic issue of corruption has influenced the wealth disparity in Bulgaria.

From Earth Mother to Sexy Lamp: The Unfortunate Reboot of Star Trek's Carol Marcus

Author: Anna Dodds

Adviser: Professor Nicole Stamant

Location: Bullock 102 W

The character Carol Marcus has appeared onscreen in the *Star Trek* canon twice: *Star Trek II: The Wrath of Khan* (1982), the second *Star Trek* film made, and *Star Trek: Into*

Darkness (2013), the second film in *Star Trek*'s rebooted universe. She is a drastically different character in each. In *Wrath of Khan*, Marcus is a middle-aged scientist, working with her son on a device to create life on dead planets. She is an old flame of the protagonist, James T. Kirk, and in this film, Kirk and Marcus are essentially peers: they have lived two very different, equally fulfilling lives and now have been brought back together to protect Marcus' research. *Into Darkness* reboots a lot of elements from *Wrath of Khan*, including Carol Marcus. In *Into Darkness*, Carol Marcus is a young weapons tech and the daughter of a warmongering admiral, the main villain. Marcus also becomes a tentative love interest for Kirk, and the film puts more emphasis on her sex appeal than her character. In this paper, I utilize feminist criticism to argue that Carol Marcus was misused and ignored in *Star Trek: Into Darkness*. Because of the difference in the character's age and the overall style of the film, Carol Marcus was demoted from maternal scientist to the villain's sexy daughter. This change indicates the different ways women are portrayed based on age, concerning trends in modern blockbuster filmmaking, and it also reminds us that feminist progress is not made in a straight line.

The Role of Social and Visual Media in Sustainability Awareness and Education Amongst College Students

Author: Emma Dufresne

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

Many higher education institutions rely heavily on technology and media to connect with students, both in and out of the classroom setting. Much of what connects people in college today is the information they receive through digital technology and media. When it comes to sustainability education and messaging dissemination, the information received through media relies on the fact that students are already subscribed to certain media platforms that they receive that information from. This research investigates how social and visual media impact sustainability awareness and action amongst college students. It also explores the interconnections between environmental sustainability, education, awareness raising, and communications. Through implementation of surveys, interviews, and a focus group, it became apparent that there are a wide variety of ideas about what social media should be for in terms of sustainability messaging. This presentation will highlight findings from this research and draw on symbolic interactionism to explore the relationships with and expectations college students have of social media content. It will focus on action items for sustainability messaging, including a focus on entertainment value and inclusion of actionable steps for students.

Examining How Research Affects Acceptance into Graduate Social/Developmental Psychology Programs

Authors: Elizabeth Engsberg, Mengyao Li, Cheyenne Goss, Erika McDonnell

Adviser: Professor Jennifer Hughes

Location: Bullock 209A W

For our project, we examined how undergraduate research experiences influence acceptance into psychology graduate programs. Guides and other articles indicate that research is an important criterion for acceptance into graduate programs, but they often lack the empirical data to support their claims (Kuther, 2004; Privitera, 2014). Our investigation involved whether research expectations could provide valuable insight into this question. Our hypotheses were (1) PhD programs run by faculty from social and developmental psychology programs will expect more research experience for applicants as compared to those applying to master's programs; (2) tenured professors who teach in social and developmental psychology programs will expect less research experience than non-tenured professors; and (3) faculty from higher ranked PhD programs in social and developmental psychology will expect applicants to have more research experience than those applying to lower-ranked PhD programs. Our sample consisted of 160 social and developmental faculty, 65% of whom were women, 35% were men, and 78.8% had earned tenure. The first hypothesis was supported: PhD programs expected more research than master's programs, $t(187) = 5.59, p = .001, d = .86$. The second hypothesis was not supported, but the third hypothesis was supported in that faculty from higher ranked PhD programs expected more research experience than lower-ranked PhD programs, $F(3, 152) = 3.83, p = .011, \eta^2 = .07$. Future research on this topic could explore the importance of first-authorship or to what extent undergraduate research predicts success in graduate programs.

Reading the Bones: Applying Forensic Anthropological Methods to Anatomical Skeletons in the ASC Biology Department

Author: Adrian Fox

Adviser: Professor John Pilger

Location: Bullock G09 (Teasley)

The human skeleton is the longest lasting record of our existence. Join me as I attempt to discover the premortem history of the Agnes Scott biology department's human anatomical skeletons. I have used quantitative and qualitative forensic anthropological methods in order to determine identifying characteristics such as sex, race, age, occupation, health status, diet, and geographic origin. Noninvasive methods used

included collecting standard bone measurements and searching for bone abnormalities that could give clues as to the lives of these individuals. Isotope testing, on the other hand, is an invasive method that could provide clues about the diet and geographic origin of the individuals. Skeletal articulation methods and metallurgical materials provide additional insight into when these skeletal displays were prepared and could help narrow down the window of time when the skeletons may have arrived at Agnes Scott College.

Adjusting Planetariums for Sensory Sensitivities

Author: Sara Sloman

Adviser: Professor Christopher
DePree

Location: Bullock 112W

Planetariums present several accessibility issues and are not necessarily created with everyone in mind. The bright changing lights, dark room, and potential for loud sounds can be harmful for people who have particular sensory sensitivities. In the interest of inclusivity, a guide on how the Bradley Observatory can have sensory-friendly planetarium shows upon request as well as suggestions to make every tour sensory-friendly will be presented. The guide includes information on how to make every show more accessible to people with these sensitivities, as well as information on how to make a planetarium show that is completely sensory friendly.

LDR 200: Designing a Healthy Campus

Authors: Lisette Soto, Amy Yarin, Macy
Carter, Lele Masitha

Adviser: Professor Amy
Patterson

Location: Bullock 210 E

In this session, students enrolled in the LDR 200 class will present their proposals for enhancing physical, mental, and social health through modifications to the Agnes Scott campus built environment. The students in the class have worked in teams throughout the semester to review existing literature from the fields of public health, architecture, and urban planning, as well as to collect data from members of the Agnes Scott community on the ways that the built environment affects faculty, staff, and student health. Students will provide an overview of their research findings from a campus-wide survey and photovoice research. Students will also discuss the ways that these findings informed their proposals.

Experiences of Food (In)Security at Agnes Scott College

Author: Allyssa Willis

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

Over the last decade, social researchers have increasingly taken an interest in college students' relationship with food insecurity. Existing research has consistently shown that students are quite vulnerable to food insecurity, experiencing difficulties at an average rate three times that of the general American population. This study examines the prevalence of food insecurity at Agnes Scott College during the 2018-2019 academic year as self-reported by current undergraduate students. Agnes Scott College is a unique setting for the existing body of research as there is no published data on food insecurity at small, urban, single-sex institutions. Relying on convenience and snowball sampling, data was collected via online surveys from the student body. Data was further gathered from individual food logs and interviews with students. The results indicate that Agnes Scott College is similar to colleges across the country in terms of food security problems. Current students report experiencing higher levels of food insecurity than the national collegiate average, particularly as a result of their financial and transportation situations.

Presentation Session, 2:25-2:45
(in alphabetical order of first author)

Coping Strategies and Access to Resources for Depression and Anxiety Among Undergraduate Students of Color

Author: Ashayla Burnett

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

This research examines the attitudes of Black, Latinx, and Asian undergraduate college students toward coping strategies for dealing with depression and anxiety and their access to resources for these conditions. Participants have been gathered from two private liberal arts institutions in the Decatur, Georgia area. The study investigates coping strategies utilized, student's prioritization for improving access to resources, and how social determinants of health influence the development of positive coping strategies. Data was collected and analyzed from individual semi-structured interviews and online surveys. In this presentation, Bourdieu's forms of capital and Romanucci-Ross' theory of hierarchy of resort are used as a theoretical framework for understanding health-seeking behavior and how socialization impacts health outcomes. Applications of this research may inform comprehensive mental health training for physicians, methods of treatment, policy change and funding of scientific research, and improve care for those who experience depression and anxiety.

Observation of Reddening in Different Stars Across the Galaxy

Author: Helena Buschermöhle

Adviser: Professor Kathryn
Gordon

Location: Bullock 112 W

The research subject of this project is interstellar reddening, which is a phenomena that happens when light interacts with dust grains standing between the observer and the object. Because most of the interstellar dust grains have a size comparable to the blue light wavelength, the blue light becomes strongly absorbed and scattered by the interstellar dust. As a consequence, objects look redder than they really are. The goal was to compute reddening rates from stars at different points of the galaxy, in order to investigate how it behaves through the Milky Way. In order to achieve it, different stars were observed in three different light filters through remotely operated telescopes located in Arizona and Chile. The data from these observations were used to compute the reddening for each star. The results were then compared to accepted reddening values measured in the past. This research is important because reddening

can change substantially the results for an observation, therefore knowing it is a important way to make sure that the results will be accurate and unbiased.

The Curious Case of Juan Francisco Manzano: An Insight into the Black Antillean Male According to Franz Fanon

Author: Destinee Groover

Adviser: Professor Rafael
Ocasio

Location: Bullock 209B W

The Transatlantic Slave Trade, an atrocity that occurred over a four-century time period, brought power and prosperity to the United States and a number of other nations at the expense of the separation, death, oppression, and colonization of Africa and its people. This achievement of success and wealth can especially be said for Cuba, where slavery made the island the world's largest sugar cane producer in the early part of the 19th century. Hidden behind the island's wealthy sugar cane industry, lies the untold stories of many slaves whose lives were sacrificed for that fortune. Of the available narratives that recount life under slavery in the Spanish-speaking Caribbean, only one was written by a Cuban enslaved worker: Juan Francisco Manzano (1797-1854). Born in Havana in enslavement, Manzano would eventually become a poet, a playwright, and the author of an autobiography entitled, *Autobiografía de un Esclavo* (*The Autobiography of a Slave*). This presentation examines Manzano's autobiography, with special attention given to Manzano's internal conflict with his blackness and his enslaved, legal, status. Similarly, my research highlights how Manzano's personal relationships, mainly with white individuals, contributed to his internal conflicts with his racial identity. Through *Black Skin, White Masks* by Franz Fanon, I will provide a psychoanalytic insight on Manzano's conflicted management of his "blackness" and his strong desire to be free and socially accepted.

Stress is the New Chic

Author: Elizabeth Kell

Adviser: Professor Willie
Tolliver

Location: Bullock 102 W

According to Webster Dictionary, Stress is defined as "a force exerted when one body or body part presses on, pulls on, pushes against, or tends to compress or twist another body or body part". While, this definition is describing the physical reaction of stress, stress in 2019 is a lot more than a force that is exerted. Stress in my personal experience is part of every day; it's a culture. A culture that thrives off glamorization of it, and this creates competition on who can win on being the most stressed. According to

Harvard Medical Review, 3 out of 4 students are stressed and 73% lack sleep. I created a ten-minute documentary called, “*Stress is the New Chic*” to investigate this culture and see if other students feel this way. I interviewed students at my college, a therapist, and a professor. In my findings, I learned that society and the media specifically use social media for encouraging and enhancing this culture. According to my interviews, students feel that in order to be successful in school, they must be stressed out and stretch themselves out thin mentally and physically. This is one biggest reasons students don’t go get help is they feel like this is normal to be successful. This conclusion left me to wonder if this is how students think today, what will be like in 20 years?

Changes in Female Humpback Whale (*Megaptera novaeangliae*) Surface Feeding Behavior Through Stages of Maternal Care and Reproduction

Author: Eman Khwaja

Adviser: Professor Stacey
Dutton

Location: Bullock G09 (Teasley)

North Atlantic Humpback Whales (*Megaptera novaeangliae*) are a solitary species that are found on their major feeding ground Stellwagen Bank Marine Sanctuary from March to November each year. Humpback whales in this region display five different feeding behaviors: kick feeding, group feeding, bubble feeding, subsurface feeding, and lunge feeding. Based on these behaviors, it was observed that there are differences in feeding between females that have a calf and females that do not have a calf, especially in group feeding. In this study, we sought to determine if pregnancy or the presence of a calf influenced group and individual feeding behavior in female Humpback whales. Observational data on the Humpback whales was collected from March until November over a period of four years aboard boats leaving Boston, Massachusetts. Collected data was analyzed to determine the frequency of the five types of feeding behavior displayed by the female Humpback whales using Student t-test and ANOVAs. We found that feeding behaviors among pregnant females decreased significantly while pregnant and while caring for their calf compared to the years prior to their pregnancy and calf, and increased again in the year post-calf. Considering the limited support female Humpback whales have as a solitary species, these results can offer insights to understanding the behavioral changes that occur in Humpback whales during stages of maternal reproduction and can provide information on the social dynamics of mother/calf pairs.

Knowledge, Perception, and Confidence about Vaccines in Adult Cancer Survivors

Author: Hadley Lyon

Adviser: Professor Jacqueline
Mix

Location: Bullock 210 E

Improvements in early diagnosis and treatment of cancer along with an aging demographic has led to a rapidly growing population of cancer survivors in the U.S. Long-term impacts from cancer and its treatment and the natural aging process may result in compromised immune system functioning. Vaccination is an important preventive health strategy to reduce severity of infection in cancer survivors, but limited study has been done to understand their knowledge and perceptions about recommended vaccines and overall confidence in vaccines. We conducted a pilot study to examine vaccine uptake and vaccine confidence among cancer survivors enrolled in an NCI-accredited cancer survivorship program. A cross-sectional, self-administered tablet-based survey of 79 cancer survivors was completed at Winship Cancer Center. Multivariable logistic regression was used to examine the relationship between socio-demographic characteristics and vaccine confidence with self-reported vaccine history. The data that will be reported on in the presentation include demographic and clinical characteristics, self-reported vaccination history, and vaccine confidence index.

Tutoring Group Projects: An Initial Study and Guide

Authors: Therese Melo, Elizabeth Dudley,
Princesse Karemera, Claire Moore

Adviser: Professor Imani
Young Bey

Location: Bullock 103 W

The Center for Writing and Speaking (CWS) at Agnes Scott College harbors a space dedicated to helping students with writing or speaking at any point in the work. Tutors at the CWS work with both individual students and groups. In this project, we strive to understand and highlight the many roles a tutor holds in group project settings as well as best practices to be tested and resolved. We have gathered input from students regarding common concerns in group projects as well as successful strategies tutors implement in response to those raised concerns. This presentation will explore the dynamics we have found between tutors and tutees in group settings.

Evaluation of a Referral System for Behavioral Consultation in Children at High Risk for Developmental Delay

Author: Hannah Piecuch, Dr. Angela Leon Hernandez,
Dr. Traci Williams, Dr. Sheena Carter, Dr. Amy Sanders

Adviser: Professor Maryam
Jernigan-Noesi

Location: Bullock 209A W

This presentation summarizes the capstone project of an internship with the Developmental Progress Clinic (DPC) at Emory University, an interdisciplinary clinic following the development of children affected by prematurity and other medical conditions requiring prolonged Neonatal Intensive Care Unit (NICU) hospitalization. Children in this group are at increased risk for a range of continuing health problems, including problems regulating emotional and social behavior. Early detection and intervention are critical to minimize the negative impact in family function and school performance, but many barriers prevent parents from accessing the care their children need. At the DPC, the Behavioral Support Project (BSP) developed a system to track referrals made for specialized diagnostic and treatment services for children with emotional and behavioral problems. In order to assess the efficacy of the BSP, a quality improvement initiative was conducted by creating a run chart of patients' ability to get services. Individualized approach when recommending providers for behavioral intervention and follow-up calls in case of unsuccessful referral improved the rate of success from 7-15% to 40-50% in the DPC's high-risk population. These results are supplemented with insights from the literature about what barriers can contribute to healthcare access disparities among children who have spent time in the NICU. In order to close the gap between children who need specialist services and referrals that can actually be accessed, further efforts including preventive strategies and modification of regional policies that are attentive to access disparities on the basis of race and class.

Presentation Session, 2:50-3:10
(in alphabetical order of first author)

**Effects of Sex Education Models on Women's Attitudes
Towards Sexuality**

Author: Mary Breedlove

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

Sex education has been taught in United States public schools since the early 20th century. Ongoing debates focus on the best way to equip young people with knowledge about sexuality and how sex education programs should be structured to provide this knowledge. This project seeks to understand how sex education background impacts attitudes towards sexuality, including participants' ideas about healthy sexuality and promiscuity. Agnes Scott College students who identify as women were invited to participate in a fifteen-point anonymous online survey on their sex education backgrounds and sexual attitudes. Interviews were conducted to gather information about how participants' sex education backgrounds have impacted their current sexual attitudes. In this presentation, I apply feminist theory and symbolic interactionism to interpret and understand the ways that female identity and sex education experience shape understandings of and beliefs about sexuality. This research attempts to showcase the importance of sex education as it can be used to cultivate healthy attitudes about sexuality and sexual behavior, which has important implications for public health and public policy.

**Male-biased Sex Ratio Reduces Female Egg-Laying in Bean Beetles
(*Callosobruchus maculatus*)**

Authors: Alicia Bukowski, Jessica Costero,
Devin Morrison

Adviser: Professor Iris
Levin

Location: Bullock G09 (Teasley)

Males and females often possess different fitness optima. Differential selection on the sexes can result in an evolutionary arms race, which can drive the evolution of novel sexual characteristics. This sexual antagonistic coevolution (SAC) may be able explain the origins of various morphological traits and behavioral adaptations in animals, including complex genital morphology, sexual cannibalism, and the focus of this research: harassment. In bean beetles (*Callosobruchus maculatus*), males benefit from fertilizing as many eggs as possible. Conversely, females are typically able to fertilize all of their eggs during one mating bout, and mating with multiple males can negatively

impact fitness. Male *C. maculatus* are known to harass females in an attempt to mount and mate, and in response, females are known to kick to try to remove the male. If this behavior is a result of SAC, then the harassment must incur some reproductive cost to the female. Egg production of females from three sex ratio treatments - females biased, male biased, and even-ratio - were used as a measure of reproductive success. Females in male-biased sex ratio treatments laid significantly fewer eggs than females in the female-biased or even-ratio treatments. We interpret these results as evidence that male harassment negatively impacts female reproductive success, potentially due to genital damage or exhaustion.

The Relative Impact of Tobacco in Bulgaria

Authors: Carrie Capel, Claudia Sims, Delaney Fisher-Cassiol, Maggie Butler, Marilyn Clisham

Adviser: Professor Mina Ivanova

Location: Bullock 209B W

Bulgaria, like many other European countries, maintains chemical regulations such as those imposed upon the tobacco industry that are much stricter than within the United States. Observation of the chemical compositions of tobacco products that can be sold in Bulgaria, specifically regarding the relative presence of the most common carcinogenic chemicals in cigarettes in the brands most often sold in Bulgaria opposed to the ones sold in the United States. The rates of diseases connected to tobacco use, such as cancer as compared to that of the United States, was identified as being correlated to these differences. The theme of increased quality and health promotion in countries such as Bulgaria, can likely be explained by the presence of the unifying supranational organization the European Union. This team's interest in this research topic was initiated by the fact that Bulgaria's cities boast a substantial lack of the scent of tobacco, despite the high rates of smoking.

Reconstructing Foundations: Normalizing Queer Identities in Apocalyptic Landscapes

Author: Alex Fallon

Adviser: Professor James Stamant

Location: Bullock 102 W

Through existing in an inherently heteronormative culture, queer identities experience an othering from the societal definition of normal. Though many scholars have theorized strategies to normalize queerness, their proposals tend to expect on a continual force of resistance from the majority heterosexual population. This expectation is not unfounded, as the laws, social norms, and nuclear family model are

all created with the heterosexual person in mind. However, the post-apocalyptic video game, *The Last of Us*, proposes a radical new solution to systemic homophobia: the destruction of the world as we know it. The game picks up twenty years after the population of America was decimated by a mutated fungal infection, which turned victims into aggressive monsters. By placing players in the ruins of cities which are both familiar and foreign, *The Last of Us* forces them to reconceptualize their own views of queerness in a space that is not intrinsically heteronormative. Additionally, through disassembling the conventional family narrative, *The Last of Us* forms a place for players to explore new definitions for family and parenting. Utilizing the work of theorists such as Shalini Harilal, Amy Green, Simon Penny, George Hagman, and Lauren Berlant, I will argue the unique impact of activism provided by *The Last of Us* as well as the reconstruction of a new foundation for which American society to rest. Through demolishing society and dismantling the social constructions of sexuality, *The Last of Us* normalizes queer identities and redefines the idea of found families.

Braces and the Yang-Baxter Equation

Author: Audrey Goodnight, Laura Stordy

Adviser: Professor Alan Koch

Location: Bullock 112 W

Braces are a relatively new construction, created to find solutions to the Yang-Baxter equation. A left skew brace is a set B with two binary operations, \cdot and \circ such that (B, \cdot) and (B, \circ) are groups, and for all $a, b, c \in B$; $a \circ (bc) = (a \circ b)a^{-1}(a \circ c)$. The Truman opposite of a brace B , denoted B' , is defined by (B, \cdot, \circ') , where $a \circ' b = (a^{-1} \circ b^{-1})^{-1}$. We give instances where B is not isomorphic to B' .

The Triumvirate of Women: Depictions of Various Weimar Female Gender Roles in the 1921 Silent Film 'Hamlet'

Author: Cameron Mitchell

Adviser: Professor Barbara Drescher

Location: Bullock 209A W

'The Triumvirate of Women: Depictions of Various Weimar Female Gender Roles in the 1921 Silent Film *Hamlet*' discusses Asta Nielsen's 1921 adaptation of Shakespeare's *Hamlet* with a focus on female gender representation in the film and how they line up with common female gender roles during the Weimar Republic during which the film was made. The paper takes the three main female characters (Hamlet, Gertrude, and Ophelia) and discusses how they reflect and respond to three Weimar era female gender presentations, namely the New Woman, the Vamp, and the caretaker, respectively. An

equal amount of primary and secondary sources were consulted in researching the paper. The major primary source of the paper, aside from the film, was an article written by Elsa Herrmann about the New Woman. Herrmann's article discusses the emergence of this 'New Woman' in German society and examines how she exists in the world, giving me a standard against which to match my reading of Hamlet as a New Woman in Asta's film. One of the most relevant secondary pieces of literature consulted was Richard McCormick's *Gender and Sexuality in Weimar Modernity: Film, Literature, and "New Objectivity"*. It discusses the presentations of gender and sexuality in various Weimar films. The paper seeks to explore female gender presentations in the Weimar Republic through media. I specifically chose to look at Asta's *Hamlet* because of its unique gender-twist on a traditionally male story, which in and of itself shows the shifting gender roles during the Weimar Republic.

How the Way Sex is Discussed in the Household Shapes Perceptions of Sex and Sexual Health

Authors: Devyn Wittmeyer

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

Due to the puritanical culture that surrounds the way female sexuality is regarded in U.S. society, there is a huge aversion towards talking about sex, even among the household when it is necessary to young people's health. Substantial research shows that lack of conversations around sexual health promotes unsafe sexual health practices, teen pregnancy, and STIs/HIV. In this study, I explore the way sex is talked about within the household during adolescence, and I question how that affects the perceptions of sex and sexual health behaviors among college-aged people, and particularly young women. Results show that Agnes Scott students report rarely receiving much of a sex education at home, not feeling comfortable approaching parents with questions related to sexual health, and instead turned to fellow peers and the internet which are full of misinformation in their adolescence. This is even more so for LGBT+ participants who reported that even when they did receive a decent sex education from their parents, it did not cater to their needs and they did not feel comfortable asking questions regarding their sexuality. This presentation is intended to promote thought and discussion on how home-based sex-education can affect one's perceptions of sexual health and ideas of how sex education within the household can be improved.

Presentation Session, 3:15-3:35
(in alphabetical order of first author)

The Impact of Instagram on Self-Esteem Among Non-Cisgender Young Adults

Author: Marianne Danneman

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 304 E

Social media has an unquestionably significant impact on self-perception and self-esteem in younger generations. This research investigates how Instagram impacts the self-esteem of non-cisgender young adults through the visual performance of gender and the formation of conceptions of gender identity. Initial participants were selected via convenience sampling from three Atlanta-area universities to complete an online survey asking both qualitative and quantitative questions regarding various aspects of Instagram use, gender conceptions, and attitudes towards social media. Participants identifying as non-cisgender were invited to further participate in one-on-one interviews to elaborate on themes and topics addressed in the survey. Key themes emerging from the data include conceptions of digital versus interpersonal performances of gender, the effect of intention of use of social media on self-perception, digital space and performance of authentic identities, and the effect of community formation on comfort in gender identity and expression. This presentation explores connections between Instagram as an online space and how it impacts the formation of gender performance and self-esteem in its non-cisgender users. Symbolic Interactionist theory and dramaturgical identity theory are utilized in discussing results on the process of identity formation as it relates to both Instagram and non-cisgender people.

An Examination of Recursive Sequences Modulo p

Author: Chelsea Funk

Adviser: Professor Alan
Koch

Location: Bullock 112 W

A sequence $\{s_n\}$ is defined by a second-order linear recurrence relation if each term s_n satisfies $s_n = c_1s_{n-1} + c_2s_{n-2}$ where $c_2 \neq 0$. A typical example is the Fibonacci sequence $\{F_n\}$ where $F_n = F_{n-1} + F_{n-2}$ with $F_0 = 1$, and $F_1 = 1$. It is known (based on previous Agnes Scott student research) that such a sequence modulo a prime p has a period length k which divides either $p^2 - 1$ or $p(p - 1)$ and that, for each divisor of either $p^2 - 1$ or $p(p - 1)$, there is at least one sequence whose period length is that divisor. This research

examines the number of pairs of (c_1, c_2) which yield each possible period length modulo p and obtains a formula to find this number.

Race and Work Satisfaction

Author: Koryn Johnson

Adviser: Professor Rachel
Hall-Clifford

Location: Bullock 308 At

This presentation is about how race affects work satisfaction among Agnes Scott college employees. It explores how employees handle racialized encounters and how the college administration handles issues of discrimination. It will delve into the mindset and perception that an employee has about racial sensitivity issues. The research explores how Agnes Scott employees feel about their work environment and what factors, such as their race or ethnicity or socioeconomic status, affect their at-work experience the most. The methods that I used to collect the data are through personal one-on-one interviews and an online survey. In this presentation, I will use critical race theory to analyze my findings, which focuses on organization and power among racial groups, and intersectionality, which explores the cumulative effect of identity characteristics on social standing.

Androgynous Athena and The Power of Masculine Identity

Author: Vic Kennedy

Adviser: Professor Scarlett
Kingsley

Location: Bullock 209B W

Aeschylus' *The Oresteia* is a tragedy told in three acts. Agamemnon, upon returning from war, is slaughtered violently in his house by his wife, Clytemnestra. Following this, Apollo convinces Clytemnestra's own son, Orestes, to murder her in vengeance. This murder results in a trial where Apollo testifies on Orestes' behalf, going as far to act as his defense attorney. Clytemnestra has returned to the mortal plane as a ghost to accompany Orestes, and she has stirred the souls of the wrathful and all-female Furies. These creatures align themselves to Clytemnestra and act as her attorney in a way, despite their preference of violence over judicial justice. This very conspicuously creates a gender divide, exposing the underlying motif of *The Oresteia*. Traditional scholarly approaches have interpreted Athena as... Rather than Athena navigating *The Oresteia* as a female character, I argue in this paper that Athena operates in a way that is androgynous. Such gender identity allows her character to accomplish tasks effectively that she could not have if she navigated the story as a strictly female character. This conclusion is not to speak on Aeschylus' utilization of Athena as an

androgynous trope. Rather, this queer reading offers an alternative understanding of *The Oresteia* that explores gender perception in ancient Greece, and argues that the gender dynamics present in this play be extrapolated upon. Additionally, I assert that Athena's androgyny and gender navigation in this play can reveal constraints present in modern-day gender variance.

The Differential Treatments of German Women Under Nazi Abortion Laws

Author: Cameron Mitchell

Adviser: Professor Gundolf Graml

Location: Bullock 209A W

“The Differential Treatments of German Women Under Nazi Abortion Laws” looks at different groups of women in Germany and how Nazi Abortion policies (including the Nazi sterilization program) affected these women in different ways. Specifically, I will be looking at four groups of women as they are categorized by the Nazi ideologues: “Aryan” women, Jewish women, women labeled mentally-ill or “asocial”, and Afro-German women. By studying these groups, I will highlight the contradictions of Nazi abortion policies. Abortion was illegal in Germany before 1927, when the Supreme Court deemed the women’s endangered life an exemption from punishment. While the Hitler regime re-criminalized abortion, it also created particular exceptions if an “Aryan” or “non-Aryan” women was deemed ‘unfit’ according to Nazi ideology. If a woman did not fit Nazi ideal (racial and eugenic) standards of the German ‘Volk’, she was permitted, forced even, to abort her child. When women fit Nazi race ideals, however, it was highly illegal to receive and to perform an abortion. The paper seeks to understand how Nazis treated women differently with their abortion policies according to the intersections of eugenics and gender and how these differential treatments highlight the contradictions within the abortion policies.

The Decline: A Short Film on Depression

Author: Junia Washington

Adviser: Professor Andrew Hayes

Location: Bullock 103W

The Decline is a narrative short film that follows the lives of young adults experiencing depression and suicidal thoughts. The film does not specifically focus on what causes depression, but rather how some people act while being directly affected by it. The film also portrays experiences that some people may have while experiencing depression. It also displays some of the actions and choices that certain individuals

decide to make in an attempt to cope with their personal experience. The purpose of the film is to educate viewers on the internalized emotions caused by depression and to promote the message that these feelings are not always publicly expressed. The film is meant to show the individualized and unique experiences of people through fictional characters. The experiences of these characters are not meant to be taken as a general consensus of how all people with depression act or feel.

Trigger Warning: This short film includes the portrayal of depression and suicide, which may be triggering. No graphic imagery of any of these issues is portrayed in this film.

Endosomal Proteins in Neurodevelopmental Disorders

Authors: Jhodi Webster, Ruvimbo Dzvurumi, Susan Cordero-Romero, Lauren Neal

Adviser: Professor Jennifer Larimore

Location: Bullock G09 (Teasley)

Rett Syndrome is a neurodevelopmental disorder that primarily affects girls. Rett Syndrome is caused by mutations in the methyl-CpG binding protein 2 gene (*MECP2*), which is found on the X chromosome. Its mutation results in impairment in cognitive, sensory, emotional, motor, and autonomic functions. Schizophrenia is also a neurodevelopmental disorder with onset in adulthood, however there is no known cause. Endosomal proteins have been implicated in both disorders, suggesting a common molecular mechanism shared between these neurodevelopmental disorders. This study explores the levels and localization of endosomal proteins in coronal brain sections for mice models with this disorder.

Legacies of Place: Constructing Ecological Memory in the Life Writing of bell hooks and Camille Dungy

Author: Elizabeth Wolfe

Adviser: Professor Nicole Stamant

Location: Bullock 102W

Camille Dungy, in her memoir *Guidebook to Relative Strangers: Journeys into Race, Motherhood, and History*, traces her experience of traveling as a poet-lecturer with her young daughter, reflecting on the ways that blackness and motherhood deeply inform her impressions of place. Through investigations of both ecological and built spaces, Dungy reconsiders the boundaries of her own body and explores how collective memories of place influence her feeling of security. Similarly, bell hooks searches for her sense of personal belonging through memory in her memoir *Bone Black: Memories*

of a Girlhood. Through the construction of generational memory from fragments of experience, hooks documents her search for belonging within herself. I argue that these two women, writing about landscapes littered with legacies of both trauma and healing, craft their memories in vastly different ways, yet both share tales of creating a sense of place in these frequently hostile environments. Dungy and hooks, through their brilliant explorations of place and constructions of memory, revise the dominant narrative of ecological life writing and inscribe new veins of cultural memory in a field that often excludes their voices. By examining these together, I hope to include these women's experiences more prominently within ecocriticism and explore how these ecofeminist texts fight against the ecological othering of black women.

Afternoon Reception and Raffle, 3:40-4:00

Evening Event, 7:00
The Frannie Graves Auditorium, Campbell Hall

A Green New Deal: Problems and Problems

Green New Deal Overview presented by Gianni Rodriguez `17 and Elizabeth Wolfe `19

Panel Moderated by Susan Kidd, Agnes Scott Center for Sustainability
featuring Marshall Shepherd (University of Georgia), Rosemary Cunningham (Agnes Scott College), Mark Douglas (Columbia Theological Seminary)

Campus Implications presented by Brittany Judson `20, Lia Millar `19, and Mallika Balakrishnan, `19

(The End- Happy SpARC!)