

19th Annual GC Student Research Conference

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APRIL 22 • FRIDAY

8:30am – 9:00am	R Morning Reception	3rd Floor Commons (Health Sciences Building)
9:00am – 10:00am	E Early College <i>Moderators: Amy Pinney</i> <i>Presenters: Early College Students</i> <i>Faculty Mentor: History</i> Entire panel devoted to these students.	HSB 202 (Health Sciences Building)
9:00am – 10:00am	D Does Financial Aid Affect Tuition? <i>Moderators: Brooke Conaway</i> <i>Presenters: Sara Etelalahti</i> <i>Faculty Mentor: J.J. Arias</i> This paper analyzes the impact of financial aid at the federal, state and local levels on public college and university tuition fees using data from the College Board. My analysis uses state level observations to measure levels of financial aid in the United States from 2005-2013 to measure the impact on tuition. I used fixed effects for states to control for differences between states. Previous literature suggests conflicting findings. I found that state level aid brought tuition down, but could be explained by tuition setting regulations on public college and universities or from historical events such as the Great Recession which is included in my data time period. A state having a merit based state level aid program and the cost of living were also statistically significant factors in increasing tuition. As more and more students enroll in colleges and universities and politicians such as Bernie Sanders running on a platform of free education, it is important to measure what affects tuition prices.	HSB 201 (Health Sciences Building)
9:00am – 10:00am	D Does mandating high school finance courses affect college student debt? <i>Moderators: Brooke Conaway</i> <i>Presenters: Kelsey Eitel</i> <i>Faculty Mentor: J.J. Arias</i> The recent financial crisis of 2008 revealed a disturbing pattern of financial irresponsibility by American citizens. Many believe that the severe lack of financial literacy in our country is partly to blame. Many states have begun to integrate personal finance courses into their school curricula in an effort to improve financial literacy and ultimately help produce a more financially literate and responsible society. However, there has been little research on the effectiveness of these programs. Using state-level college data and a difference-in-difference technique, I examine three states that had rigorous financial education mandates all implemented in 2007: Texas, Georgia, and Idaho. I compare the average debt of college students in these treatment states to the average debt of college students in control states before and after the implementation of the curricula mandates. I find no evidence that college students who lived in states with mandated high school finance courses had lower average debt.	HSB 201 (Health Sciences Building)
9:00am – 10:00am	D Does Skipping or Repeating a Grade Affect Self-Assessed Intelligence? <i>Moderators: Brooke Conaway</i> <i>Presenters: Timothy Smith</i> <i>Faculty Mentor: J.J. Arias</i> In the United States, 1.5% of all children repeated a grade in 2010 and grade skipping has come under criticism. When examining the impact of skipping or repeating, the economics literature presents contradictory results often based on flawed methodology. I utilize self-assessed intelligence data, and a strong set of covariates, from the National Longitudinal Study of Adolescent to Adult Health to determine whether grade skipping or grade retention have an impact on school age students. Self-assessed intelligence may be free of some of the problems present in the outcome variables used in previous studies, such as academic performance. I find that grade skipping has a significant negative effect on self-assessed intelligence, while the results on grade skipping are insignificant. Consequently, school administrators may need to reevaluate their current policies.	HSB 201 (Health Sciences Building)
9:00am –	D Effectiveness of Supplemental Instruction in a Statistics Course	HSB 201 (Health Sciences Building)

10:00am

Moderators: Brooke Conaway

Presenters: Emily Baum

Faculty Mentor: Brandon Samples

At most universities, an introductory statistics course is required for the majority of the students before they begin their specific major classes. Roughly 25% of undergraduate students at a given university will take a statistics class during a single academic year. Of these students, several will fail to retain the information, making future classes more difficult, or fail to successfully pass the course, increasing the likelihood a student will not graduate on time. Providing academic support through the implementation of a Supplemental Instruction (SI) Program gives students the opportunity to receive free, out-of-class help focused on student achievement in this course. Led by a SI Leader, students are able to attend sessions to receive conceptual help while reviewing class material, developing study strategies, and collaborating with classmates. We will be focusing on the effects SI can have on student achievement in a statistics classroom. Since statistics is a necessary and important course in several disciplines, proper academic help is crucial for the success of the students. We will share our data analysis for using SI in a statistics course over a 4-year period, providing participants the opportunity to identify the positive effects SI has on student success.

9:00am – **L Condom Embarrassment, Self-Efficacy, and Acquisition among College Students** HSB 211 (Health Sciences Building)

10:00am

Moderators: Scott Butler

Presenters: Kristina Hyland, Jennie Pless

The current study is designed to evaluate condom embarrassment, acquisition, and self-efficacy among college students. The sample is made up of 168 Georgia College students. The data was collected through a survey that students were asked to fill out during the beginning or end of one of their regular class times. The survey includes questions about how embarrassed the student is about using condoms, how confident he or she is in their ability to properly use a condom, and where he or she has acquired condoms.

9:00am – **L Long Distance Romantic Relationship Influence on Stress and Relationship Satisfaction** HSB 211 (Health Sciences Building)

10:00am

Moderators: Scott Butler

Presenters: Shacelie Stephenson

Faculty Mentor: Tsu-Min Chiang

Romantic relationships can be significantly stressful for college students and adding distance to a relationship can make relationship stress seem greater as things like reduced intimacy and increased loneliness (Vela et al., 2013) affect the individuals involved. Contrary to this assumption, previous research has found that even though individuals in long distance relationships reported being apart as their top stressor, they were still very satisfied in their relationships (Maguire and Kinney, 2010). Additionally, research conducted by Roberts and Pistle (2009) found that anxiety in long distance relationships did not affect relationship satisfaction while anxiety in geographically close relationships significantly and negatively influenced relationship satisfaction. The findings from these studies support the idea that long distance relationships are not all consistently problematic (Stafford, 2005; qtd in Maguire and Kinney, 2010). Based on these findings, it is hypothesized that different factors will impact relationship stress and that long distance relationship couples will show less relationship stress and more overall satisfaction than couples that live near each other. Research is still in progress and will be completed by the time of conference.

9:00am – **L Purpose of Life Through Sex** HSB 211 (Health Sciences Building)

10:00am

Moderators: Scott Butler

Presenters: Hunter Patrick

Faculty Mentor: Jim Winchester

Everyone asks "what is the meaning of my life?" Philosophers and others have had so many ideas, but I think most people look to one of three these places to find meaning: Legacy, happiness and religion. Happiness is a present state of mind that risks future consequences, such as not leaving a legacy for oneself. Legacy is an attempt for one's name to live on, but at a risk of losing happiness in the present state of mind. Some religions try to favor one, either legacy or happiness. If one wants their legacy, or some part of them to live on forever that can be achieved through reproduction, i.e. sex. Sexual pleasure is strongly heightened when romance is involved. Romance, according to many beliefs, is associated with happiness and true bliss. My presentation breaks apart different beliefs about the meaning of life and connects them to love. Love can mean many things and I help explainstate how that single word is what life is all about for the past, present and ultimately eternity.

9:00am – **L Sex Ed. and Causal Attitudes towards Rape and Sexual Assault** HSB 211 (Health Sciences Building)

10:00am

Moderators: Scott Butler

Presenters: Dillon Johnstone

Faculty Mentor: Sandra Godwin

Problem Statement:

Students and researchers suffer from a lack of literature and data that examines the causal attitudes towards heterosexual rape and sexual assault (Cowan & Campbell, 2012), especially in college communities. This translates

to a lack of tools activists, educators, and researchers can use to effectively influence systemic and institutional policies that properly address issues related to rape and sexual assault.

The growing necessity to discuss the root causes of rape and sexual assault is not missed by Georgia College; this is evidenced by the increased work done by our campus women's center, and involvement by our new Title IX coordinator. However, as important as their efforts are, they are only pieces to the paradigm of efforts that work to combat such a pervasive issue. This research would not only help identify work that can be done within our institution, but can be additive to efforts when addressing rape and sexual assault within other institutions.

9:00am – **S A Short-term Study on the Effects of Greywater Use on Ornamental Cabbage Growth, Soil Quality and Groundwater Quality** HSB 207 (Health Sciences Building)
10:00am

Moderators: Ron Fietkau

Presenters: Mary Plauche

Faculty Mentor: Allison VandeVoort

Greywater (non-sewage wastewater from sinks, laundry, and showers) reuse is a sustainable water practice that has potential for crop and landscape irrigation. Composition of greywater varies; it depends on geography and products used in the household. It generally includes chemicals originating from personal hygiene and cleaning products, and hair and skin from the human body. For the purpose of replicating studies on greywater, synthetic greywater, which is an average chemical composition of greywater based on literature, can be used. In this study, synthetic greywater made in the lab was used to irrigate ornamental cabbage plants for eight weeks to simulate short-term landscaping reuse of greywater. Soil and groundwater were tested every four weeks for, pH, nitrate, phosphate, and sulfate concentrations. Plant growth (height, diameter, and number of leaves) was also measured every two weeks. Rainwater was analyzed after rain events for potential effects on the study system. The study site was adjacent to Lake Laurel where the water table was close to the surface, making groundwater more accessible and susceptible to the impacts of greywater. From data analysis thus far, this study has shown that greywater does not have a significant impact on soil, groundwater quality and plant growth in the short term. Results from this study will be used to determine the feasibility and potential of utilizing greywater on Georgia College campus. Funding for this study was from the Georgia College Sustainability Fee Council.

9:00am – **S Corn As A Drinking Water Purification Method and Medium** HSB 207 (Health Sciences Building)
10:00am

Moderators: Ron Fietkau

Presenters: Allison Pourquoi

Faculty Mentor: Samuel Mutiti

One of the major challenges facing our planet today is the availability of safe drinking water. Millions of people around the globe do not have access to a safe source of drinking water. Pathogens (bacteria, viruses and protozoa) are among the major contaminants of concern. The presence of these pathogens in drinking water has adverse effects on human health, and is a very common problem in less industrialized countries and some rural areas in developed countries. The United Nations estimates that millions of people die every year from drinking water contaminated with pathogens. This study investigates the use of crushed corn to filter or disinfect bacteria from drinking water. Escherichia coli solution in a saline solution, stream water and deionized water were used in the study. Bacteria were quantified using IDEXX and Coliort 18. Results from this study showed that corn was an extremely effective filter for bacteria in water.

9:00am – **S Determination of Fluoride Levels in Mouthwash and Tap Water** HSB 207 (Health Sciences Building)
10:00am

Moderators: Ron Fietkau

Presenters: Eme Henshaw

Faculty Mentor: Ronald Fietkau

The benefits of supplemental forms of fluoride are immense. Fluoridated water systems have decreased dental caries by almost 25% in the US over the past fifty years. Besides from its role in remineralization of the teeth, new research shows it might also have an effect on the adhesion of bacteria to the enamel. Despite its benefits, an optimal concentration of fluoride is necessary to avoid both dental caries and fluorosis. The Department of Health and Human Services recommends a range of 0.7 ppm to 1.2 ppm fluoride in community water systems. This range minimizes the chance for dental fluorosis while maximizing the positive effects of the fluoride. Tap water samples from the Oconee region around Milledgeville, GA and different brands of mouthwash samples were analyzed using ion chromatography. Mouthwash samples showed levels of fluoride consistent with those listed on the bottle by the manufacturer. Analysis of tap water samples indicated the level of fluoridation within the community.

9:00am – **S Monitoring Surface Water of Lake Sinclair in Georgia** HSB 207 (Health Sciences Building)

10:00am

Moderators: Ron Fietkau

Presenters: John Olmstead

Faculty Mentor: Catrena Lisse

Pollution through sewage water contamination, industrial fertilizer, and coal burning power plants can lead to degradation of water quality. Eutrophication, the ecosystem response as a result of the addition of excess nutrients, will further degrade water quality by depleting the oxygen in water. Nutrient levels are measured using HACH surface water kits and YSI probes to assess eutrophic conditions. Purge-n-Trap coupled with GC/MS is used to test for potential gasoline additives and byproducts found in the surface water around well-populated, high traffic areas of Lake Sinclair. This presentation highlights the EPA protocol for water quality in recreational areas, method development and experimental design for the analysis, as well as the results of the project. Livingston, Robert J. Eutrophication Processes In Coastal Systems. New York: CRC, 2001. Print. 1

9:00am – **1 Francis Tarwater and Free Will in Flannery O'Connor's The Violent Bear It Away** HSB 209 (Health Sciences Building)

10:00am

Moderators: Bruce Gentry

Presenters: Steven Savage

I propose to present a paper I have written on the topic of free will as it relates to the character of Francis Tarwater in Flannery O'Connor's 'The Violent Bear It Away'. The paper will investigate the struggle of O'Connor's young protagonist as he seeks to break from the bonds of his family history even as he is tied to it's legacy. It will be argued that Francis Tarwater is a sympathetic character on a journey of self-discovery and that, ultimately, he is able to act with free will despite powerful childhood memories which haunt him; O'Connor's skillful weaving of a spiritual message throughout her second novel allows her to comment, through Francis, on the nature of salvation.

9:00am – **1 Next of Kin: An Exhibition of Ben Reynold's Photography** HSB 209 (Health Sciences Building)

10:00am

Moderators: Bruce Gentry

Presenters: Mairi Dabbs

Faculty Mentor: Carlos Herrera

Next of Kin exhibits the photographic works of Ben Reynolds, who, galvanized by curiosity and impassioned to seek meaning in the commonplace, exposes the seemingly inconsequential moments in life through the lens of his southern roots. The artist captures moments of non-choreographed events as they unfold naturally and develop into activated scenes in the viewer's mind. By capturing in his work what is expressively human, the artist levels the plane between subject and audience. The Midville, Georgia community, both home to the artist as well as the location of Reynold's black and white images exhibited in the show, becomes the hub around which the exhibition revolves. This small southern town acts as the vehicle on which Reynold's message is carried as relationships evolve among the artist's subject and stories enrich those ties becoming relatable moments of humanity. The objection of the curation process is to clearly convey to its audience the artist's message, it is also the curator's concern to provide a broader understanding of the artist's work as it relates to audience's community. In this presentation I will discuss the broader implications of the curation process and the importance of an exhibition's impact on its community. By drawing correlations between Midville Georgia and the Milledgeville community the show attempts to comment on a segment of southern identity and thereby reveal the common thread that runs through all humanity.

9:00am – **1 The Culture of Meat Consumption: An Analysis of the Attitudes and Perceptions toward Meat through Surveys and GIS** HSB 209 (Health Sciences Building)

10:00am

Moderators: Bruce Gentry

Presenters: Jessica Craig

Faculty Mentor: Amy Sumpter

A large part of culture involves food: its celebration, its heritage, and, of course, its consumption. However, the focus on food in cultural scholarship has been principally the what and how of people's relationships to food, rather than the why. Therefore, as both a geographer and an environmentalist, I am most interested in the consumption of food, and especially the consumption of meat, as a part of Southern and American culture. I have studied the consequences of high demand for meat on our environment: the overuse of antibiotics, the wasted food and energy resources, and the air, water, and soil pollution. Now, I am studying meat consumption from a geographical, and specifically a cultural, viewpoint. I will do this by combining census data containing information on population, income level, and meat consumption by type with interviews I will conduct on the culture of home-life cooking and personal perceptions and their effects on attitudes toward meat. The goal is to develop a catalog of meat consumption attitudes in the context of local culture and connect it to the larger geographical context of local, state, and national patterns of reasons for and justifications of cultural and consumer behavior.

9:00am – **1 "Where You Come From is Gone": Hazel Motes's Mother in John Huston's Wise Blood** HSB 209 (Health Sciences Building)

10:00am

Moderators: Bruce Gentry

Presenters: Catherine Bowlin

When critics read Flannery O'Connor's astounding novel Wise Blood, there is more to be discussed than only the published novel. The unpublished manuscripts, housed at Georgia College's Special Collections, give incredible insight into the Southern author's writing process. Furthermore, it becomes important to keep in mind any adaptations of O'Connor's grotesque story; perhaps the most famous interpretation of her work is John Huston's film version by

the same name.

When comparing these three distinct texts (the published novel, the unpublished manuscripts, and the film version), there are many similarities, and of course, many differences. One of the most shocking differences between these texts are the inclusion, or the exclusion, of several female characters, one being Hazel Motes's mother.

Upon thorough research of the unpublished *Wise Blood* manuscripts, Annie Lee Jackson, the mother of the main character, can be considered one of the most important characters throughout O'Connor's drafts. Most critics suggest that with the exception of only a few pages of the published novel, Hazel's mother is erased entirely. Moreover, in Huston's film *Wise Blood*, Annie Lee Jackson shows up even less in the film than she does in the novel.

This paper will attempt to answer several questions that arise regarding the erasure of this once-prominent character in the film version of *Wise Blood*. I assert that, as in both the manuscripts and the novel, Annie Lee Jackson remains one of the most significant characters in Huston's film, even though she is not mentioned once.

9:00am – 10:00am	4 'The Little Toy Wife Erased': Posthumous Editorial Silence and Textual Issues with Sylvia Plath's Ariel	HSB 300 (Health Sciences Building)
	<i>Moderators: Carlos Herrera</i>	
	<i>Presenters: Savannah Lyle</i>	
	<i>Faculty Mentor: Alex Blazer</i>	
	<p>This paper deals with Sylvia Plath's final collection, <i>Ariel</i>, and its unique relationship with silence. As a work of confessional poetry, <i>Ariel</i> was intended to disrupt norms, to make readers uncomfortable, to push the boundaries of propriety. The first edition of the collection, however, did not fully accomplish Plath's intentions because it was heavily edited by Plath's husband and fellow poet, Ted Hughes. Hughes purposely omitted poems that portrayed him and people he brought into Plath's life negatively in order to construct a new narrative. This narrative erased Hughes's faults—particularly his infidelity that led to his and Plath's separation—so that he could in no way be blamed for her suicide. Plath's manuscripts were archived and Plath scholars quickly realized the discrepancies between what Plath created and what was published. Eventually, after much outcry by feminist scholars, <i>Ariel: The Restored Edition</i> was published in 2004, making Hughes's destruction of the manuscript even more visible than before. By combining biography, close readings of three poems Hughes omitted from <i>Ariel</i>, feminist theory, and reader response theory, this paper deeply explores the way that Hughes manipulated Plath's readers and examines the intentions of her final manuscript.</p>	

9:00am – 10:00am	4 Bruce Bechdel's Legacy	HSB 300 (Health Sciences Building)
	<i>Moderators: Carlos Herrera</i>	
	<i>Presenters: Emily McClure</i>	
	<i>Faculty Mentor: Jim Schiffman</i>	
	<p>Alison Bechdel's graphic memoir <i>Fun Home</i> details the struggles a family faces when fear forces people to hide who they truly are. In particular, the book reveals the homosexual identity of Alison Bechdel's father, Bruce Bechdel, and how his inner struggle over that identity affected every area of his life and led to his eventual suicide. Some people decry <i>Fun Home</i> as a betrayal of Bruce Bechdel because it topples the front that he built and spent his entire life maintaining. However, this author contends that the memoir brings honor to Bruce Bechdel's memory by providing a complete picture of who he actually was.</p> <p>The reflective process of writing the memoir supplied Alison with deeper insight into the troubled relationship that she had with her father during her childhood. <i>Fun Home</i> also clarifies some of the more questionable areas of Bruce's life, such as his police record. Alison Bechdel's book as a whole provides readers with a thorough understanding of Mr. Bechdel's complex character. Finally, this essay explores the primary counterargument to the above position: that <i>Fun Home</i> dishonors Bruce Bechdel by dredging up unnecessary pain from the past instead of letting him be remembered as a pillar in his community. A rebuttal to this counterargument states that <i>Fun Home</i> honors Bruce Bechdel's memory by forcing society to face the difficult position in which it daily places members of the LGBTQ community. This essay concludes by asserting that <i>Fun Home</i> enables readers to see beyond Bruce Bechdel's surface. While the memoir does not serve as a justification for his many questionable actions, it does protect him from being seen as one-dimensional.</p>	

9:00am – 10:00am	4 The Strange and Unusual Pattern of Tim Burton	HSB 300 (Health Sciences Building)
	<i>Moderators: Carlos Herrera</i>	
	<i>Presenters: Sarah Gilbert</i>	
	<i>Faculty Mentor: Alex Blazer</i>	
	<p>When applying auteur theory to film, a film auteur is widely considered to be a filmmaker whose style of filmmaking is so deeply exemplified through their films that upon watching one the viewer is unmistakably certain without seeing the director's name that the film is theirs. A widely known filmmaker, Tim Burton is one of the best examples of an auteur whose motifs run consistently throughout his filmography helping to portray a wide range of story plots and characters</p>	

on screen. Beetlejuice and Edward Scissorhands are two films that helped solidify and perpetuate the elements that have come to be unmistakably Burton: the presence of an outsider who is more human than the socially accepted insiders, the main conflict being between life and death, funny and quirky animation and visual effects, a strong heroine equal to the main character hero, and finally a sense of the imagination. I will trace these elements through Beetlejuice and Edward Scissorhands, as well as his more conventionally weird movies Big Fish and Big Eyes, arguing that even the least Burtonesque films contain his auteur traits to help address and examine the same issues in society, such as what is normal and what is not, that develop in his earlier works.

9:00am – **4 Understanding Art as Transformation: Julie Taymor as Adaptor and Auteur** HSB 300 (Health Sciences Building)

10:00am

Moderators: Carlos Herrera

Presenters: Mikaela Lafave

Faculty Mentor: Alex Blazer

Director Julie Taymor has become a name known for her slightly off-kilter films including the well known Across the Universe. However, Taymor has made a name for herself through her adaptations of Shakespearean works through Titus (1999) and The Tempest (2010), adaptations of Titus Andronicus and The Tempest. Throughout my paper, I examine how these films address the increasingly blurred intersections between Auteur theory, adaptation theory, and avant-garde filmmaking. Auteur theory, as developed in the United States by Andrew Sarris, champions the influence of the director on a final film above the influence of the producer, scriptwriter, or editor. I define Taymor's stance as an "auteur director" through her specific film aesthetic, defined by her use of special effects and montages. I argue that these elements conflict with adaptation theory when "auteur" directors work heavily within the realm of adaptation, especially the cultural icon of Shakespeare. I examine these elements within Taymor's two Shakespearean adaptations while further considering Taymor's roots in avant-garde filmmaking. While considering this triad of factors working through these films, I examine the key question of whether Taymor's films can still be considered "works of Shakespeare."

9:00am – **F Classification Trees, Regularized Regression, and Peer Tutoring** HSB 304 (Health Sciences Building)

10:00am

Moderators: Kelly Massey

Presenters: Austin Lawson

Faculty Mentor: Jebessa Mijena

Classification trees are useful tools for determining the outcome of an event given some predetermined criteria. Like a flow chart, classification trees provide a relatively simple way to partition a sample into groups. Similarly, regularized regression models are used to determine the probability of achieving a particular outcome, given a set of predictors. In our study, we use classification trees and regularized regression models to determine the grade a student will earn in a course, taking into account their utilization of Peer Tutoring services offered at a liberal arts university in the southeastern United States.

9:00am – **F Parental Attribution in Relation to Teacher Ratings of Children's Aggressive Behavior** HSB 304 (Health Sciences Building)

10:00am

Moderators: Kelly Massey

Presenters: Emily Hegstetter, Anna Williamson

Faculty Mentor: Tsu-Min Chiang

Past research indicates there is a discrepancy between parental and teachers' report of aggressive behavior in children. Hinshaw et al. (1992) found that teachers' ratings of externalizing behaviors demonstrated a stronger association with playgroup observation than the parental ratings in children between age 3 and 6. Parental and teachers' ratings of preschool aged children with externalizing behavioral problems further yielded a low level of agreement between parents and teachers (Korsch and Petermann, 2013). Our present study, consists of parents and teachers of 44 girls and 71 boys aged three and four, collected from head start programs in southeast United States. The children's teachers filled out Lafreniere and Duma's Social Competence Behavioral Check Evaluation (SCBE) describing the children's social emotional competence at school. Parents were asked to report observations and attributions of their children's misbehaviors. Specifically, relationships between teachers' ratings of aggressive-calm vs externalizing problems scores and parental attributions were assessed to examine whether these negative behaviors are mediated by parental attributions. The results and implications will be shared at the conference. A subsequent cross-cultural study in Italy and Spain will be introduced.

9:00am – **F Student Engagement and Academic Success in a Summer Bridge Program: Exploring the Impact of Parental Education** HSB 304 (Health Sciences Building)

10:00am

Moderators: Kelly Massey

Presenters: Diana Bacallao

Faculty Mentor: Stephanie McClure

Georgia College and State University's Bridge Scholars Program (BSP) offers conditional admission to freshman applicants who demonstrate potential for success in college but who do not meet all the standards for traditional admittance to the university. The students complete an academically intensive program that ensures students are ready to matriculate in the fall. Students take two three-credit-hour core curriculum classes and a one-credit-hour student success seminar. Students must earn a C or better in each class, attend program events, and maintain a clear

judicial record in order to matriculate for the fall semester. We hypothesized that students from disadvantaged backgrounds that are able to successfully navigate the admissions process would be more engaged academically and therefore more successful at the end of the program. BSP participants completed a survey based on the Higher Education Research Institute's (HERI) first-year survey. The survey measured engagement, self-esteem, perceived college readiness, as well as parental support, both emotionally and financially. The survey was distributed electronically on the last day of the summer program to the 130 students that completed the program. Six additional participants began, but did not complete the program. Ninety-eight participants completed the survey for a response rate of 75%. Institutional data on each student was added to the final data file by the Office of Institutional Research prior to the data being anonymized. This data included high school GPA and SAT scores as a measure of previous academic success and GPA from the BSP courses. Parental education level was used as an indicator of socioeconomic status, absent data on family income and parental occupation. Measures of academic engagement and disengagement were constructed using multiple indicators consistent with HERI operationalization of these concepts. Analysis was conducted to determine the relationship between parental education level and engagement/disengagement and their ultimate impact on student success. The combination of parental education, engagement, disengagement, and four demographic and previous academic success variables had a statistically significant impact on student GPA during the BSP program ($F(7,88) = 3.835, p = .001, R^2 = .23$). While neither parental education nor engagement was a significant contributor to GPA, disengagement was. Additional analysis showed that student's reported engagement and disengagement were not impacted by any of the four control variables and were somewhat surprisingly not correlated to each other. The BSP creates a unique environment for students. There is a certain level of forced engagement and prevented disengagement as students are held accountable on a daily basis for attending class, doing homework, and spending their time wisely. Of particular interest given the structure of the BSP is the greater impact that disengagement has on GPA compared to engagement....

9:00am – **F The Relationship Between Parental Attributions and Child Anxiety** HSB 304 (Health Sciences Building)

10:00am

Moderators: Kelly Massey

Presenters: Jessica Wheeler

Faculty Mentor: Tsu-Min Chiang

Previous research has found that parental attributions of child behavior can have an effect on the parent-child relationship. For instance, parents that have a strictly internal and stable attribution style for their child's problematic behavior tend to use less effective parenting strategies and express more negative emotions than parents who consider external factors as well as internal factors in making attributions (Jacobs, Woolfson, & Hunter, 2016). In addition, Colalillo, Miller, and Johnston (2015) found that mother and father child-responsible attributions predicted child internalizing and externalizing problems. These studies have examined the behavioral effects of parental attributions but not the emotional effects on the children. I suspected that children whose parents tended to internally attribute problem behavior to their children would be more anxious. As part of a larger study, parental surveys and SCBEs were distributed to the parents and teachers, respectively, of 45 three year old preschool children who had been nominated for an empathy training program. The current study examines teacher ratings of children on the anxious-secure scale as well as parental attributions of problem behaviors including physically hurting another child, physically hurting the parent, and hurting the parent's feelings. Although results were inconclusive, an interesting pattern emerged during analysis. Parents were more likely to internally attribute their child's behavior when their child hurt their feelings than when their child physically hurt a peer. Other results and implications will be discussed at the conference.

10:15am – **A An Exploration of The Great Speckled Bird and Federal, State, and Local Government Harassment.**

11:15am

Moderators: Sandra Godwin

HSB 304 (Health Sciences Building)

Presenters: Gwendolyn London

Faculty Mentor: Mark Huddle

Founded in 1968 by New Left activists, Gene Guerrero and Tom Coffin, The Great Speckled Bird was an alternative press based in Atlanta, Georgia. Nationally recognized for its unique brand of journalism, the Bird presented the New Left's viewpoint on current events rather than that of the corporate run media. By criticizing the United States involvement in Vietnam, expressing Communist sentiments, and promoting the Civil Rights movement, this newspaper gained government attention through its brash and abrasive style. Such attention turned into harassment that stemmed from all levels of government (local, state, and federal) and furthermore served to hamper the Bird's operations but not completely stifle them. Not even the 1972 firebombing of the publication's offices could stop the Bird from expressing its opinion. Instead, its demise could be found in the death of the New Left as the Vietnam War came to a close and the youth that had made up the counterculture no longer concerned themselves with activism.

10:15am – **A Dada Sound Poetry**

HSB 304 (Health Sciences Building)

11:15am

Moderators: Sandra Godwin

Presenters: Grady Boyle

Faculty Mentor: Bes Yarborough

In February 1916, the Dada art movement was started. In the midst of WWI, many citizens had grown disillusioned with governments, cultures, and nationalities. Dadaists took these frustrations and channeled them into an art movement that sought to destroy the traditional definition of art. They took aim at governments, languages, and most

importantly, the bourgeois, whom they blamed for WWI.

The medium and style of art ranged drastically from artist to artist, but one of the most important concepts to come from Dadaism is the sound poem. Hugo Ball's "Karawane", Raoul Hausmann's "fmsbw" and Kurt Schwitters "Ursonate" are the most significant poems to come from this movement. These poems destroyed language, and thus the conflicts of nationality, with their use of unpredictable, incoherent "gibberish" words. These words, which meant nothing in any language, implied a new form of international community and beauty through hybridity.

In my project I sought to modernize the Dadaist sound poem. Utilizing modern technologies, I took very small fragments of sound from videos from across the globe. I then rearranged and looped these sound bites to create a poem-like structure. Through this process I was able to emulate the sound qualities of the original poems while also putting modern twists on the Dada concepts of unification, language, nationality, and randomness. For the accompanying video, I took the modern style of a typography video and combined it with the visual style of the Dadaist manifestos, demonstrating their inconsistent typefaces and overlapping structure.

10:15am – **A Printed Propaganda in the Holy Roman Empire: Albrecht Dürer's Triumphal Arch of Maximilian I** HSB 304 (Health Sciences Building)
11:15am *Moderators: Sandra Godwin*

Presenters: Elyse Hoganson

Faculty Mentor: Elissa Auerbach

The invention of the printing press in the fifteenth century not only changed the art market, but also served as a resource in political endeavors. The printing press allowed for the distribution of art and literature on an unprecedented scale. The Holy Roman Emperor Maximilian I made use of this invention in his reign over the Habsburg Empire by justifying his right to rule through the spread of intricately detailed prints created by Albrecht Dürer, his court artist. Dürer's monumental print, Triumphal Arch of Maximilian I, completed in 1515, is a prime example of the power and influence of prints on society in the Holy Roman Empire. This engraving of a triple triumphal arch with detailed depictions of Maximilian's family tree as well as recounts of his military successes was constructed with 192 wood blocks, categorizing it as monumental. Preceding triumphal arches were constructed to honor the military victories of Roman emperors, and the choice of a triumphal arch motif rendered as an engraving carries on the Roman tradition in an innovative way, thus allowing for the far corners of the empire to be informed of the emperor's message. Dürer's Triumphal Arch signifies the great possibilities of the printing press for an empire. The print illustrates Maximilian's right to the throne in an innovative format, with the capability for a bigger impact on the people of the empire, through the ease of distribution, than a physical work of architecture might have.

10:15am – **Y Butterflies and Blacksmiths: The Grand Allegory in "The Artist of the Beautiful"** HSB 300 (Health Sciences Building)
11:15am *Moderators: Elissa Auerbach*

Presenters: Helen Mcmillan

Faculty Mentor: John Sirmans

When one thinks of the word "allegory" the first thing that comes to mind may be Plato's well-known allegory of The Cave, or how Pilgrim's Progress is representative of the spiritual journey. An allegory is used as an explanation of an idea beyond the literal level, and when a story becomes a symbol, it is considered an allegory. In Nathaniel Hawthorne's short story "The Artist of the Beautiful" published in 1844, the Romantic style, the symbol of the butterfly, and the theme of matter versus spirituality work together to create a grand allegory that illustrates the vast difference between the spirit and the practical. The story also exemplifies American culture at the time the it Hawthorne wrote it. In my paper I explore the devices Hawthorne uses to create this emblem, and in my attempt to explain the grand idea I engage the ideas of other researchers. By doing this I am able to enrich my understanding of the story as well as better explain the comprehensive idea within the work.

10:15am – **Y Content Analysis of political satire and parody of the 2012 and 2016 elections** HSB 300 (Health Sciences Building)
11:15am *Moderators: Elissa Auerbach*

Presenters: Brandon Johnston, Mckenna Jones, Brett Mace, Isiah Thomas, Anna Williamson

Faculty Mentor: Mary J. Land

The purpose of this research is to identify the effects that political satire and parody has had on the last 2 presidential elections. This research draws upon skits, rants, parodies and jokes from Saturday Night Live, The Daily Show and The Colbert Report as its units of measurement. These different mediums of satire are further analyzed through a content analysis to determine how often candidates were mentioned along with how they were portrayed. A key concept to differentiate between the forms of satire is determining if the humor is parody based off of a past event or if it is a rant where the host uses satire to voice his or her own political views. Previous research on this topic took each of these shows and analyzed them individually, but this study looks to view the use of political satire as a whole and its effects throughout the last 3 elections. Once the satire has been properly analyzed the research will show how political satire has altered voters opinion.

10:15am – **Y Reclaiming American Soil: Thomas Hart Benton's The Apple of Discord and Consumerism in Post-War America**
11:15am *Moderators: Elissa Auerbach* HSB 300 (Health Sciences Building)

Presenters: Mairi Dabbs

In 1949, the Regionalist artist Thomas Hart Benton completed *The Apple of Discord*, a canvas conflating the biblical narrative from Genesis of Adam and Eve with the Greek myth of the Judgment of Paris and the golden apple he awards to Aphrodite. The painting depicts an erotized female figure dominating the rolling hills of a rural landscape; her discarded heels and satin dress piled by her side. She holds a golden apple positioned at the center of the canvas to the male figure who either gives or receives the fruit. The extension of the woman's arm calls attention to a red barn in the upper left, emblematic of the Midwest. By fusing mythological and biblical references with iconic American imagery and attributes of Hollywood, seen in the high heels and castoff dress, the painting functions as a social critique of consumerism in post-war America. With the nation in the midst of the Cold War, the threat of communism created anxieties assuaged with a shift towards capitalism. By the 1950's, consumerism signified American economic progress by the ability to consume rather than produce. In Benton's picture, the coquette protagonist, identified with the deceptive qualities of Hollywood and consumerism, juxtaposed with an idealized American landscape prompts a commentary on the new definition of American success after World War II. I will argue that Benton's femme fatale can be interpreted as an allegory of the romanticized American landscape marred by capitalism and the desire to reclaim an unadulterated America, pure of consumeristic corruption.

10:15am – **Y The Mathematical Errors of 'A Modest Proposal'** HSB 300 (Health Sciences Building)

11:15am

Moderators: Elissa Auerbach

Presenters: Michael Faulknor

Faculty Mentor: Peter Carriere

This paper focuses on Jonathan Swift's "A Modest Proposal," which is often considered to be one of the greatest satires ever written. The proposal satirizes the scientists of the time based on how the narrator speaks as though he is one of the very men he seeks to satirize. Swift's essay proposes the consumption of human babies, offering "logical" arguments as to why this would be a brilliant idea. Throughout the essay, the narrator makes mathematical errors, which Swift uses to further satirize the scientists, implying a glaring lack of intelligence. This paper focuses primarily on the specific mathematical errors made throughout the essay and how they further satirize the scientists in England at the time.

10:15am – **M Does European Union Membership Affect Levels of Corruption?** HSB 201 (Health Sciences Building)

11:15am

Moderators: John Swinton

Presenters: Kevin Morris

Faculty Mentor: J.J. Arias

Recent increases in European Union (EU) membership have been met with protests as critics noted the widespread corruption still rampant in recent and established member countries. Given the global ramifications of the debt crisis in Italy, Spain, and Greece, determining the efficacy of the EU Accession Reforms and Membership Criteria on corruption reduction is vitally important. Using European and Central Asian country-level panel data from the World Bank's Global Development and Global Indicator database, I estimate the impact of EU membership on corruption levels. Using multiple measures of corruption, I find that EU membership has a small, but significant negative impact on corruption levels.

10:15am – **M Does Legalizing Same-Sex Marriage Affect Hate Crime Rates?** HSB 201 (Health Sciences Building)

11:15am

Moderators: John Swinton

Presenters: Nicholas Kollinger

Faculty Mentor: J.J. Arias

Since 2004, 37 individual states have legalized same-sex marriage. In 2015, the Supreme Court ruled that same-sex couples have the fundamental right to marriage in accordance with the Due Process and Equal Protection Clauses of the Fourteenth Amendment. Meanwhile, sexual orientation-related hate crime persists. Given the negative reaction to the Supreme Court ruling in some groups, it is possible there may be an increase in hate-based violence. Utilizing state-level panel data primarily from the Uniform Crime Reports and the Census for 2000 through 2013, I estimate the effect of legalizing same-sex marriage on hate crime rates. After implementing state-level and year-level fixed effects, my difference-in-difference results indicate legalizing same-sex marriage leads to a statistically significant decrease in the hate crime rate.

10:15am – **M Does Police Militarization Affect Civilian Deaths?** HSB 201 (Health Sciences Building)

11:15am

Moderators: John Swinton

Presenters: Brent Echols

Faculty Mentor: J.J. Arias

State-level panel data is used to determine whether the militarization of police departments affects the number of civilians killed by law enforcement officers. Utilizing novel civilian death data and information from the U.S. Census Bureau, FBI Uniform Crime Report, and U.S. Fish and Wildlife Services, I estimate an ordinary least squares model containing state-level fixed effects. Given that there are multiple datasets containing civilian death information measured in a variety of ways, I estimate multiple models and present sensitivity analysis. I find that police

militarization has a significant effect on civilian death rates. Considering the negative impacts of civilian deaths, the consequences of federal programs that perpetuate police militarization must be weighed against the potential benefits when considering future policy.

10:15am – 11:15am	G Further Analysis of Unalterable Roots: The Life of Rachel Adams <i>Moderators: Amy Pinney</i> <i>Presenters: Sachi Shastri</i> <i>Faculty Mentor: Jonathan Deen</i>	HSB 202 (Health Sciences Building)
10:15am – 11:15am	G Literate Lamars: Uncovering the Ruins of Fairfield Plantation <i>Moderators: Amy Pinney</i> <i>Presenters: Chelsea Romero</i> <i>Faculty Mentor: Jonathan Deen</i>	HSB 202 (Health Sciences Building)
10:15am – 11:15am	G Oral History Interviews: Civil Rights Struggles in Putnam County <i>Moderators: Amy Pinney</i> <i>Presenters: Angel Monroy, Jake Morris</i> <i>Faculty Mentor: Jonathan Deen</i>	HSB 202 (Health Sciences Building)
10:15am – 11:15am	G Unalterable Roots: Joel Chandler Harris and Alice Walker <i>Moderators: Amy Pinney</i> <i>Presenters: Stephanie Sanchez</i> <i>Faculty Mentor: Jonathan Deen</i>	HSB 202 (Health Sciences Building)
10:15am – 11:15am	P Cowboys, Tattoos, and Freakery: an Analysis of Assimilation and Personhood in Melville's Typee <i>Moderators: Mandy Jarriel</i> <i>Presenters: Matthew Cornelison</i> <i>Faculty Mentor: Katie Simon</i> <p>In this paper I analyze Tommo, the first person narrator of Melville's semi-autobiographical novel Typee, and argue that he marks the advent of a new American masculine identity for the nineteenth century. I compare Tommo to the archetype of the American cowboy, and use this comparison to discuss a fear of emasculation by assimilation and a fear of a loss of personhood in the text. I explore the concept of emasculation by assimilation through the way Tommo uses the character Fayaway as a tool that enables him to criticize western capitalism, which he resents. Tommo's relationship with Fayaway also enables my exploration of the idea of loss of personhood. Tommo labels Fayaway as a "freak," and his aversion to her tattoos and to being tattooed himself constitutes a crisis in identity for him. This paper incorporates analyses of Tommo obtained from Melville critics, as well as historical research on cowboys, tattoos, and freaks.</p>	HSB 211 (Health Sciences Building)
10:15am – 11:15am	P I Have Painted Myself: Catharina van Hemessen's Self Portrait <i>Moderators: Mandy Jarriel</i> <i>Presenters: Jeffrey Jones</i> <i>Faculty Mentor: Elissa Auerbach</i> <p>The transformative period of the sixteenth century is one marked by revolutionary alterations in the tenets and creeds of European society that had remained static for several preceding centuries. Central in this nexus of change, is the stylistic revolution of Flemish art as that region reeled from the social and political upheaval of the Reformation and successive decades of societal transformation for both men and women. Catharina van Hemessen stands as exceptional example of a woman of the northern Renaissance allowed to fully explore and develop her craft as a sanctioned artist of her day and serving as a conduit for other women who did not have access to the remarkable power of a paint brush. In examining her Self Portrait of 1548, one is given a window into van Hemessen's personal struggles as an accomplished artist and provided a powerful portrayal of the established roles and expectations of women in 16th century Flemish society.</p>	HSB 211 (Health Sciences Building)
10:15am – 11:15am	P The Vitality of Harem Women in the Mughal Empire <i>Moderators: Mandy Jarriel</i> <i>Presenters: Sarah Strickland</i> <i>Faculty Mentor: Aran MacKinnon</i> <p>The Mughal Empire was a distinctly aristocratic, sophisticated, and cosmopolitan culture that lasted from 1526 until 1707 C.E. in present-day India. The Mughals had their origins among Turkic-speaking peoples of Anatolia and created a successful empire by synthesizing the Persian culture of the Sunni Muslim Mughals with the native religious majority of India, the Hindus, while at the same time, maintaining their ancestral traditions from Timurid rule. Arguably, the most significant aspect of the Emperor Akbar's reign and success was his harem. Unlike traditional, western thought, harem women were vital to the bureaucracy's success. My research of the harem correctly identifies these women</p>	HSB 211 (Health Sciences Building)

and their roles. I bring to light the gender and social hierarchies of the Mughals as well. Who were they? Harem women consisted of mothers, sisters, wives, dancing and singing girls, female servants, as well as concubines. What did they do? According to Lisa Balabanlilar's article about the Mystic Feast, harem women were prominent in international trade, recognized scholars, patrons of the arts, organizers of political and communal banquets, and city developers. Additionally, harem women also organized and led hajj to Mecca; these women were domestic and foreign representatives of the Mughal Empire. In this paper I will argue that the harem women were of extreme importance. The women were a treasure of Emperor Akbar, each using her intellect and skills to further the policies, relations, and syncretism of the empire. If it were not for the women of the harem, Akbar and the Mughals would not have been successful.

10:15am – **P Warning of Vice: The Idle Servant in A Girl with a Broom from the Rembrandt Workshop** HSB 211 (Health Sciences Building)
11:15am

Moderators: Mandy Jarriel

Presenters: Anne Moreschi

Faculty Mentor: Elissa Auerbach

Genre scenes produced by seventeenth-century Dutch artists often evoke messages of religious pride in the cleanliness of the domestic sphere, an especially important theological virtue to Calvinists, and civic pride in the Dutch Republic's political independence and economic wealth. Depictions of women working in modest and well appointed homes were abundant. This theme of cleanliness and Godliness reappears often in elements of Dutch Golden Age culture such as in literature, works of art, etiquette guides, and poems. Scholars, including, Simon Schama, have argued that their scenes convey the desire for a virtuous soul. Children are present within various genre scenes of domestic labor, often accompanied by a maidservant or mother engaging in the task of cleaning the home. Once twelve years of age, girls were treated as adults in regard to the care of the home and were able to be employed by other homes as servants. A Girl with a Broom, ca. 1648, attributed to the Rembrandt Workshop, depicts a young servant girl with the tools of labor commonly associated with women. She leans upon a fence, idle from her work as she holds a broom without sweeping, and gazes directly at the viewer. Children were depicted in art to either mirror the current disposition of adults influencing them, or as a predictor of their future lives as adults. In this paper I will argue that A Girl with a Broom is a painting which addresses warnings of vice in young women and issues of child labor. Children used for labor in the home were especially prone to falling astray as they aged; A Girl with a Broom illustrates this concern. Servants and their behavior was a subject depicted frequently in paintings by Nicolaes Maes. The warning of the young servant girls' future is evident through her idleness and youth along with symbolism of her domestic tools. Idleness of youth is a vice warned against in popular sermons and literature of the Dutch Golden Age; particularly noticed in emblem books and poetry by Jacob Cats. Women were expected to be occupied with domestic duties so that they may remain virtuous and of pure soul; child servants were also expected to adhere to this discipline.

10:15am – **2 Comparative Capacities of Kaolin Products for Sorption of Gram-Negative Bacteria** HSB 207 (Health Sciences Building)
11:15am

Moderators: Chavonda Mills

Presenters: Hanna Azimi, Cortney Harth

Faculty Mentor: Andrei Barkovskii

Biofilms are a complex arrangement of microorganisms that produce a strong adherence between cells and various surfaces that result in the loss of billions of dollars every year due to associated health problems, equipment destruction, and product contamination. Kaolin is expected to remove from biofilm and retain bacteria due to electrostatic interaction and surface sorption. Ten various kaolin products have been preliminary investigated for their sorption capacities, and four of these products were selected for a further study based on their superior efficiency. In this study, their capacity was tested for the sorption of gram-negative bacteria represented by Escherichia coli and Pseudomonas aeruginosa. Ultra fine kaolin, diatomaceous earth, and fine and platy kaolin removed 70%, 81%, and 94% of E. coli cells at their initial concentrations varied between 59×10^6 cells/mL to 34×10^7 cells/mL. Diatomaceous earth, fully calcined, ultra fine, and fine and platy kaolin removed 54%, 69%, 74%, and 89% of P. aeruginosa from 139×10^5 cells/mL to 133×10^6 cells/mL. We concluded that selected kaolin products have a potential for removal of gram-negative bacteria from biofilms. A parallel study conducted with gram-positive bacteria demonstrated similar results, indicating efficiency of kaolin products for biofilm treatment.

10:15am – **2 Comparative Capacities of Kaolin Products for Sorption of Gram-Positive Bacteria** HSB 207 (Health Sciences Building)
11:15am

Moderators: Chavonda Mills

Presenters: Cortney Harth

Faculty Mentor: Andrei Barkovskii

Biofilms propose a serious threat to medical, food, and water treatment industries when microorganisms irreversibly adhere to a surface and produce extracellular polymers making removal difficult. Biofilm formation on medical devices and pipelines commonly include Gram-positive Staphylococcus aureus and Bacillus megaterium. Kaolin is expected to remove and retain bacteria due to electrostatic interactions and surface sorption. Ten kaolin products were investigated for sorption capacities. Four were selected based on their efficiency. S. aureus results were as followed: Diatomaceous Earth Kaolin shown 95% sorption at 30×10^7 to 34×10^8 cells/ml, Fully Calcined Kaolin shown 97% sorption at 21×10^7 cells/ml, Ultra Fine Kaolin shown sorption with 70% - 73% at $33-36 \times 10^7$ cells/ml, and Fine & Platy

Kaolin shown 81% - 84% sorption at 10⁶- 65 x10⁷ cells/ml, respectively. B. megaterium results were as followed: Diatomaceous Earth kaolin showed 82-88% sorption at 14x10⁸cells/ml, Fully Calcined Kaolin shown 82% sorption at 25 x10⁷ cells/ml, Ultra Fine Kaolin ok sorption at 61-81% at 26-32 x10⁸ cells/ml, and Fine & Platy Kaolin shown 79% sorption at 84 x10⁸ cells/ml. The selected products were concluded to have potential for removal of gram-positive biofilms with varying concentrations. A parallel study conducted with gram-negative bacteria shown similar results indicating efficiency of kaolin products towards biofilm removal, but further investigations are needed.

10:15am – 11:15am **2 Impact of Coastal Dredging on Bacterial Communities and Biological Contamination of Intertidal Oakdale Creek (Sapelo Island, GA)** HSB 207 (Health Sciences Building)

Moderators: Chavonda Mills

Presenters: Chance Jones

Faculty Mentor: Andrei Barkovskii

Tidal creek systems represent the main link between watersheds and coastal waters on barrier islands. The water quality of tidal creek systems is impacted by land-based activities. Due to high rainfall amount, drainage ditches and their maintenance are used to protect households and roads from excess surface water. This study addressed the effects of drainage ditch excavation on biological contamination of intertidal Oakdale Creek (Sapelo Island, GA) that occurred between March and August of 2014. Three stations were tested; these were located in the headwater, mid-stream, and the creek mouth. Bacterial community structure along with the occurrence and abundance of pathogens (*Salmonella* spp., *Shigella* spp., *E. coli* O157:H7), fecal indicators (*Enterococcus* spp., *E. coli*), virulence genes (VGs- *eaeA*, *Shig 1B*, *Sal invA*, *StxI*), and a wide array of tetracycline resistance genes (TRGs) were monitored before, during, and after excavation. Bacterial composition exhibited a high degree of spatial diversity along the creek. Highest temporal shifts in community composition were detected in the water column and sediment of headwater, and coincided with the dredging schedule. Incidence of TRGs, VGs, and Pathogens and their concentrations substantially increased during and after the dredging, while abundance of *Enterococci* spp. and *E. coli* incidence and abundances were to a lesser extent elevated by the dredging. We concluded that while dredging is necessary for adequate drainage, it is a possible threat to public health while being performed. We propose that different approaches for storing excavated material should be explored to limit contamination of downstream systems.

10:15am – 11:15am **2 Methods of Determination of the Binding Site of Adenovirus E4 ORF3 and Ddx6** HSB 207 (Health Sciences Building)

Moderators: Chavonda Mills

Presenters: Julia Weinrich

Faculty Mentor: Kasey Karen

Adenovirus is often associated with localized infections in areas such as the respiratory or intestinal tract. It is a double-stranded DNA virus with a 36kb genome encoding 30-40 genes. The life cycle begins with the viral genome entering the cell and activating early gene transcription. E4orf3 is an early gene that activates the synthesis of late viral proteins and shuts down host cell protein synthesis. Ddx6 is a cellular protein present in cytoplasmic processing bodies (P-bodies), which are responsible for regulating gene expression by degrading mRNAs and repressing host cell translation. Ddx6 is known to bind to the Ad5 E4orf3 protein, but not the Ad9 E4orf3 protein. In order to narrow down the binding site of Ad5 E4orf3 to Ddx6, overlap PCR was used to create chimeras of different combinations of both the Ad9 and Ad5 E4orf3 genes. These PCR products were incorporated into an expression vector using TOPO-TA cloning. Currently, we are working to transfer the chimeric genes into a mammalian expression vector. Eventually, E4orf3-Ddx6 binding sites will be identified using co-immunoprecipitation assays. Since adenovirus is a model for both virus and cellular biology, knowledge of these interactions could elucidate additional functions of the cellular P-bodies as well as be applicable to other viruses.

10:15am – 11:15am **T China's Economic Transformation: How Domestic Institutional Actors Drove Economic Reform** HSB 209 (Health Sciences Building)

Moderators: Aran MacKinnon

Presenters: Sean Fahey

Faculty Mentor: Steven Elliott-Gower

In this paper, I apply and assess the relative explanatory power of the tools of international political economy – namely, different analytical perspectives – to China's post-Mao economic reforms, which resulted in a shift from totalitarian communism to authoritarian capitalism. After examining specific political actors, groups, and policies, I conclude that the domestic institutional analytical perspective, which emphasizes autonomous state actors, best explains the implementation of the reforms.

10:15am – 11:15am **T The Double Edged Sword of ISIL: Americas Failed Foreign Policy to Respond to the Growing Caliphate** HSB 209 (Health Sciences Building)

Moderators: Aran MacKinnon

Presenters: Matthew Shelden

Faculty Mentor: Roger Coate

The Islamic State (ISIL) has been able to continue to grow progressively larger over the past year, and the U.S and its allies' policies have done little to slow down the movement. ISIL has succeeded in consolidating power over largely

Sunni populated areas in Syria and Iraq. At the same time, extremists groups and individuals from all over the world have pledged allegiance to the movement and have inspired terrorists attacks in Western and non-Western countries alike. The Islamic State's brand has gained attention throughout the world. Simultaneously, the FBI's and other standard definitions of International Terrorism do not seem to be appropriate for classifying and dealing with ISIL. ISIL plays a dual role in the world. Yet U.S policy has failed to see it as an insurgent rebel group as opposed to an international terrorist organization. The result has been an inability to deal effectively with the recruitment of Islamic extremists from all over the world, including the United States itself. This paper endeavors to explain, the nature, origins, and implications of this failure for the future on U.S policy in the region and world.

10:15am – **T The National Spirit of Persia: Iranian Nationalism and Persian Identity in 19th and 20th century Iran** HSB 209 (Health Sciences Building)
11:15am *Moderators: Aran MacKinnon*

Presenters: Kayla Abercrombie

Faculty Mentor: Samiparna Samanta

The idea of being Persian emerged in the 7th century during the Sassanid Empire and functioned as the foundation for Iranian nationalism through the 19th and 20th centuries. Its deep historical roots in the Persian Empire have served as the identity for a majority of the nation for centuries. The unique attributes of Persian identity range from its religion to language, making the Persian identity one of the most inimitable concepts in all of history.

Several regimes, specifically the Qajar dynasty and the Pahlavi dynasty, have attempted to establish Iranian nationalism throughout their reign. However, due to unshakable notions of Persian Identity in Iran, these efforts have been in vain, and the distinctive character of Persia has prevailed. The enduring spirit of Persian identity throughout experiments with nationalism has caused nationalism in Iran to fail under these regimes and resulted in the Constitutional Revolution of 1906 as well as the Iranian Revolution of 1979. The revolutions serve as indicators of such failures.

10:15am – **T UNITA's Insurgent Struggle for a Free Angola: Blurring the Lines between State and Non-State Actors** HSB 209 (Health Sciences Building)
11:15am *Moderators: Aran MacKinnon*

Presenters: Joseph Tribble

Faculty Mentor: Chuck Fahrer

This project, which became my senior thesis, came out of interest in the UNITA insurgency in Angola during the period of decolonization. In Angola, this period was riddled by an anti-colonial insurgency until the Portuguese withdrawal in 1975, followed by a long-lasting civil war among competing factions of the Angolan people. Three major insurgent groups that originally opposed the Portuguese vied for control of the country in a destructive power struggle, which was exacerbated by the heavy-handed involvement of international powers. Consistent with many regional Cold War conflicts, outside support was a condition of the expanse of the proxy wars being fought by the Western and Eastern Blocs. Following the eventually successful push for post-colonial self-determination, the resultant political vacuum in Angola created a disintegrating atmosphere of anarchy in which rival insurgent groups jockeyed for power. One of the key groups in this conflict was the União Nacional para a Independência Total de Angola (UNITA), which conducted a long running insurgency against the communist government of Angola until the cessation of hostilities in 2002. UNITA's unique political positioning in the Angolan conflict allowed it to function as a state within a state, as they attempted to build a nationalistic response to what they saw as an illegitimate government in Angola. UNITA did this by creating a unique state-like structure that functioned as a challenger to the widely recognized MPLA government, and blurred the line between state and non-state actor.

11:30am – **1 Algal community recovery from thermal pollution in Lake Sinclair, Georgia** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Christopher Harkins*

Faculty Mentor: Kalina Manoylov

The legacy effect of thermopollution on algal communities was investigated in Lake Sinclair, Baldwin County, Georgia, United States of America. Thermal pollution created high percent dissimilarity between diatoms in the warmed side and the side following seasonal changes in temperature within the lake. After the plant had been closed, temperature in the lake is expected to become uniform and follow seasonal variations rather than staying around 28 degrees Celsius year round. The lake is low in nutrients, not stratified, and very turbid. The objective of this study was to assess algal community indices in a legacy high temperature site and a no disturbance site and evaluate species specific responses. Standard methods of collection, processing, identification and enumeration were used for this study. Samples were taken from two sites, one adjacent to the old power plant and another unaffected by long term temperature increase. Diatoms dominated the algal community in both sites, followed by green algae and cyanobacteria. High species richness and diversity in both sites indicate potential recovery. The majority of algal taxa were oligo to mesotrophic and common. Species identity was significantly different, with similarity between sites less than fifty percent. Representatives of genus *Cymbella* were dominant in the natural site. Independent of temperature effect, taxa tolerant to higher nutrient, like *Melosira varians* Agardh and *Synedra ulna* (Nitzsch) Ehrenberg were in the legacy site because potentially shallow depth, and less mixing. Algal community is in transition to reduce dissimilarity that was present due to temperature as a major stressor.

11:30am –

12:15pm

1 An Investigation Into the Water Quality and the Effects of Clear Cutting on a Freshwater Stream

Presenters: Demichael Winfield

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Samuel Mutiti

Groundwater has continued to grow as a source of drinking, irrigation and industrial cooling water in the US and the rest of the world. Even in the state of Georgia, where a most drinking water comes from surface water bodies, a number of families and farm operations rely on groundwater for their water needs. This study continues an investigation of surface water contamination at Salamander Springs Farm in Baldwin County, Georgia. Along with water quality parameters (dissolved oxygen, air temperature, water temperature, conductivity, and pH), fecal coliform, nitrates, phosphates and chlorine were tested in surface water. One site along the stream had elevated level of chlorine (27 ppm) that is not expected in natural environments. Nitrate levels were all within the normal range while phosphates were higher at some locations on the farm. Dye tracing along with GIS modeling was used to track the potential paths contaminants can take throughout the water system. The neighboring land has recently been clear-cut, so nitrate and phosphate run off may begin to occur. Additional water quality data will be collected to determine if the clearcutting of the adjacent land as well as other factors are affecting the water system.

11:30am –

1 Application of New Low-Cost Technology for 2d-Flow Bound Resonance Method for Measurement of Fluid Flow

12:15pm

Presenters: Aidan Burlison, Cain Gantt, Abigail Savage, Arthur Shue

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Ken McGill

Proof of principle of the 2d-flow bound resonance method for measurement of fluid flow was established 2014. Devices employed for the measurement included 16 8-channel sample and hold Analog to Digital Converters (ADC), and 16 8-channel amplifiers. These devices were purchased in 2004. New devices available contain both the ADC and amplifier, and are available for much lower cost. The new devices are less defined for the application of 2d-flow bound resonance method for measurement of fluid flow. This presentation discusses the method for using current technology for 2d-flow bound resonance method for measurement of fluid flow.

11:30am –

1 Basins of Attraction for a Predator-Prey Model

3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Austin Lawson

Faculty Mentor: Susmita Sadhu

Attractors in dynamical systems are orbits towards which a system will eventually tend. Basins of attraction are regions of initial conditions in phase space which will eventually tend to the same attractor. In our analysis we present the basins of attraction for two predator-prey models: the first incorporates interference (interspecific) competition between two predating species, and the second incorporates competition within the predating species themselves (intraspecific competition).

11:30am –

1 Betta Fish Color Discrimination Learning in a Plus-Shaped Maze

3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Mattie Barrett, Chloe Beacham

Faculty Mentor: Walter Isaac

Pilot studies involving LED lights and the discriminatory learning abilities of *Betta splendens* led us to explore their ability to discriminate different presentations of colored stimuli. We hypothesized that associating a specific color with food reinforcement would lead to the subject's ability to discriminate between the assigned color and the other non-reinforced colors presented in a plus-shaped maze. Learned association was operationally defined as no more than one erroneous arm entry per day for two consecutive days. Trials began with one trial per day. The procedure was altered to increase testing to four trials per day. Shifting from one trial per day to four trials per day did not alter the number of errors per day, nor did it change the mean number of seconds necessary to complete trials (Fish 1, M = 80.82 s; SD = 73.53, Fish 2, M = 68.59 s; SD = 65.97, Fish 3, M = 89.00 s; SD = 80.46) Lastly, maintaining four trials per day, we added a vertical colored stimulus to the horizontal colored stimulus presented at the end of each arm. The average number of seconds required to complete the task dropped (Fish 1, M = 16.63 s; SD = 14.64, Fish 3, M = 9.25 s; SD = 11.98). Fish 2 did not acquire the task and its error rate and time per trial remained unchanged. These results support the idea that female *Betta* fish are able to accomplish discriminatory learning between primary colored Plexiglas slides using food as reinforcement.

11:30am –

1 Body Composition Changes After a Bout of Submaximal Cycle Exercise in a Healthy Population

12:15pm

Presenters: Alyssa Crosswell, Amrita Dey, Nicholas Haden, Victoria Okereke

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Kelly Massey

Cycling has been a common method of physical activity for individuals of all ages. Many use cycling as a means for weight loss but do not think about how cycling could affect other physiological changes within the body. This study examined how a 45-minute bout of submaximal cycling affected body composition in a healthy population. Purpose: To monitor change in body composition after a 45-minute bout of submaximal cycle exercise. Methods: Twenty-three volunteers (16 F/7 M) were asked to complete an informed consent, PAR-Q, health history, and a three-day dietary recall before testing occurred. Pre-exercise measures of blood lipids, fasting glucose, dual-energy x-ray absorptiometry (DXA), urine analysis and skinfolds were taken prior to a bout of cycle exercise. Subjects were instructed to cycle for 45 minutes at 1.5 kilopond (kp), maintaining a RPE of 15 - 17. Post-exercise measurements were taken immediately after subjects completed the cycling bout. Results: Subjects (21.5 ± 1.39 yrs; 66.1 ± 18.63

kg; 164.8 ± 8.2 cm) exhibited a significant decrease in body weight post exercise (0.32 ± 0.336 kg) as well as a significant 0.61 unit decrease in urine pH ($p < 0.05$). Total cholesterol increased significantly (173.5 ± 26.18 mg/dL to 179 ± 26.53 mg/dL; $p < 0.05$) while no significant changes were seen in triglycerides, LDL, HDL, or glucose post exercise. Body composition via DXA and skinfolds showed no significant change after exercise. Conclusions: A 45-minute cycle bout does not significantly affect body fat or lean body mass measures however it does decrease total body weight and urine pH. This moderately high intensity exercise increased total cholesterol levels yet did not affect other blood lipid or fasting glucose measures. In conclusion, an acute bout of moderately high intensity exercise minimally affects body composition measures in a healthy normal population.

11:30am – **1 Caddisflies of Central Georgia** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: James Jarrell*

Faculty Mentor: Chris Skelton

The order Trichoptera is one of the largest groups of aquatic insects, with 13,574 known extant species in the world. In North America there are more than 1,350 species, and approximately 40% are found in the southeastern states. The Trichoptera of Georgia, however, have not been well studied. This survey examined populations of Trichoptera within six counties in middle Georgia. Adults were collected at night with light traps at 12 locations throughout the six counties. Larvae and pupae were collected at 8 locations during the day by searching rocks for cases. The collections were made between the months of August and October of 2015. During this period, individuals from a total of 10 families were collected. Of the families found, 8 were represented solely by adults, 1 family was only found in larval and pupal stages, and 1 family had individuals in all three stages.

11:30am – **1 Central State: Uncovered** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Allison Cronin, Emily Dunn, Maranda Tharpe*

Faculty Mentor: Nicole DeClouette

In our poster presentation, we will discuss the history of Central State Hospital leading up until the year new patients were no longer accepted in 2010. Our main topics of interests will include, but are not limited to, the treatments performed and the conditions endured by patients, as well as the lasting impact the institution left on thousands of lives.

Through the research we have done thus far in our education courses, we are excited to share information about this institution that was once the biggest in the world.

11:30am – **1 Deriving a Star Formation Rate Control Sample for Major-Merger Galaxy Pairs** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Allison Jacques*

Faculty Mentor: Donovan Domingue

From 81 close major-merger pairs of galaxies observed with the Herschel Space Telescope (H-KPAIRs), we determine whether the infrared flux at 12 micron (W3) or 22 micron (W4) wavelengths as catalogued in the Wide Field Infrared Survey Explorer (WISE) archives are equivalent measures of star formation rates (SFR) to those derived from 6 Herschel photometric bands. Following this procedure allows us to create a SFR control sample derived from the published COLD GASS set of isolated galaxies that has data for the W3 and W4 fluxes but not the Herschel photometric bands. The establishment of a connection to the COLD GASS sample will allow us to compare radio measures of gas content across isolated and paired galaxies for future studies.

11:30am – **1 Development of an Organic Laboratory Experiment: An Old School Characterization of Ketones and Aldehydes** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Joseph Cleland*

Faculty Mentor: Kimberly Cossey

The purpose of this research is to develop an organic chemistry lab that compares methods of characterizing ketones and aldehydes, while completing nucleophilic substitution and oxidation reactions. In the past, qualitative tests were used to verify the structures of organic molecules. While spectroscopy has all but replaced these methods, students can learn valuable reaction chemistry using classic reagents. Students will characterize products of a reaction using 2,4-dinitrophenylhydrazine to replace the carbonyl group via a nucleophilic substitution and the silver mirror test to further oxidize the product. They will then analyze the products using NMR. These characterization reactions will be coupled to a green oxidation reaction of alcohols to form the desired carbonyls. A range of primary and secondary alcohols will be oxidized to give both ketones and aldehydes. Tertiary alcohols will be used to show both the inability to oxidize a tertiary alcohol as a negative for the qualitative tests. These results will then be coupled with modern techniques such as ¹H-NMR and IR spectroscopy to determine the structure of the carbonyl molecules, something that the older qualitative tests cannot do.

11:30am – **1 Differential Diagnosis, Surgery, and Return to Play in a College Football Player after a Fracture of the Fifth Metatarsal** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Nolan Baugh, John Elliottgower*

Faculty Mentor: Mandy Jarriel

The objective for this project is to present the case of a collegiate football player with a fracture of the fifth metatarsal, otherwise known as a Jones fracture. The athlete, a 6'1", 300-pound, offensive lineman, was originally diagnosed with a mild, midfoot, lateral ligament sprain before x-rays confirmed a fracture of the fifth metatarsal. Surgery was performed in the hopes that he would return before the end of his senior season. The audience will be informed about

the background of the patient, differential diagnoses for this injury, treatment of a Jones fracture, uniqueness of this particular injury, and a conclusion of this case.

11:30am – **1 Differentiated Instruction For Visual, Audio, and Kinesthetic Learners** 3rd Floor Commons (Health Sciences Building)

12:15pm
Presenters: Amber Myers, Madelyn Stanitzke
Faculty Mentor: Nicole DeClouette
The purpose of this presentation is to discuss differentiating instruction according to distinct student learning styles and to present examples of methods of differentiation. The presentation will focus on the characteristics of visual, audio, and kinesthetic learners, and will involve a discussion of the characteristics of each learning style as well as methods of differentiating instruction in order to reach students in each category. Examples of specific classroom activities designed to accommodate each of the three categories of learners will be offered.

11:30am – **1 DNA extraction of the Atlantic Sand Fiddler Crab** 3rd Floor Commons (Health Sciences Building)

12:15pm
Presenters: Fiona Lien
Faculty Mentor: David Weese
Marine ecosystems are home to a variety of organisms and often allow for high dispersal potential not afforded to terrestrial organisms. However, for some marine species there may be unperceived intrinsic (e.g., life history traits) and extrinsic (e.g., ocean currents) barriers preventing gene flow between populations and giving rise to genetic divergence within species. An example of a species whose density and diversity depends greatly on the ocean for survival and reproduction is the Atlantic Sand Fiddler Crab, *Uca pugnator*. This crab is found in abundance along the Atlantic and Gulf coasts of the United States inhabiting beaches and salt marshes from Massachusetts to the panhandle of Florida. The planktonic larvae produced by fiddler crabs, along with their large geographic range suggest high levels of dispersal and gene flow throughout the range. However, morphological and behavioral variations can be observed between northern and southern populations along the Atlantic coast indicating restricted gene flow and population divergence. Given this, we hypothesize there will be genetic variation across the range, caused by possible barriers to gene flow. To test this, DNA will be extracted from specimens collected from several locations throughout the range and sequence variation of the cytochrome c oxidase subunit I (COI) region of the mitochondrial DNA (mtDNA) will be examined.

11:30am – **1 Eastern Screech-Owl Populations Respond To Climate Change.** 3rd Floor Commons (Health Sciences Building)

12:15pm
Presenters: Robert M. Chanbler, Cory Grober
Faculty Mentor: Bob Chandler
The Eastern Screech-Owl (*Megascops asio*) exhibits polymorphic plumage (appearing in gray and rufous morphs with intermediates). Modern studies indicate that changes in global climate patterns have noticeable effects on the demographics (morph frequency) of this species populations. We compared demographic data of owl populations from the 1960s to the present, gathered from previous studies in the scientific literature, and personal observations. A modern European study of the Tawny Owls (*Strix aluco*) established the genetic determination of the color phases, differences in the environmental preferences of the two phases, and shifts in morph frequency being linked to changes in global climate patterns. Their study proposed that the population demographics of these owls have been, and will continue to be modulated by changes in global climate patterns. Our study demonstrates a similar process influencing populations of the Eastern Screech-Owl. The shift in morph frequencies across populations is primarily characterized by an increase in the frequency of rufous phase birds from the South to the North and from West to the Eastern United States.

11:30am – **1 Efficacy vs. Efficiency: Time Management in Nursing** 3rd Floor Commons (Health Sciences Building)

12:15pm
Presenters: Alyce Kempe
Faculty Mentor: Josie Doss
Purpose: The purpose of this study is to address the following: 1) the difficulties associated with time management styles in a hospital setting as perceived by nurses and patients and (2) the nurses and patient's perceived quality and experience of care rendered under time restrictions.

Design/Method: This study is a triangulation analysis of multiple studies. Findings were based on both qualitative and quantitative studies accessed from the Medline, Proquest, CINAHL, and EBSCOhost between February 2015-March 2016.

Results: Empirical data and quantification of time usage on a shift is limited. In Australia, nurses spend an average 37% of their time with their patients, but time acts as both a barrier and a facilitator to direct communication with the patient and patient satisfaction. Communication becomes more opportunistic and indirect when time restraints are present. Patient satisfaction with regards to perceived availability and reliability of nursing staff and quality of care decreases as time management and efficiency increases. Nurses and patients remarked positively to more patient interaction through hourly rounds, and bedside reporting.

Discussion: Efficiency has negative effects with regards to direct communication with the patient, patient satisfaction,

and quality of care. More time spent with patients at bedside is a positive change within an institution with regard to nurses' and patients' perceived satisfaction. But, without further empirical data detailing the nurses' perception of time barriers and its associated stresses, no conclusions can be made with regards to how the nurses' perceived time restraints can influence the nurses' satisfaction.

11:30am – **1 Efficiency of CdTe solar panels** 3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Gabriel Nelson

Faculty Mentor: Ken McGill

Cadmium Telluride (CdTe) solar panels have the potential to compete with the Silicon dominated solar energy market. CdTe has a higher absorption coefficient which allows the same amount of light absorption utilizing one hundredth of the material used in Silicon panels. However, CdTe is less efficient than Silicon. Improving CdTe efficiency to that of Silicon's would allow CdTe to be a major competitor in solar energy portfolio. First Solar, the world's largest thin film solar manufacturer whose process is based on CdTe, recently announced their record setting efficiency of 22.1%. The theoretical efficiency limit of CdTe is 30%. Increasing voltage, which is directly correlated with efficiency, is a way to reduce the gap between the theoretical and practical efficiency limit. We used SCAPS simulation software to understand the effects of minority carrier lifetime and minority carrier density on voltage. Our simulations show that voltage is most dependent on minority carrier lifetime. The highest voltage is achieved under high carrier lifetime and high carrier concentration. The other parameters contributing to efficiency are short circuit current and fill factor. The effect of carrier lifetime and carrier concentrations on short circuit current and fill factor will also be discussed.

11:30am – **1 Empathetic Response Differences in Same-Race Versus Other-Race** 3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Bradleigh Carpenter, Rachael Waldrop

Faculty Mentor: Ashley Taylor

The present study is under development to survey possible differences in participants' empathetic reactions to another's emotional distress dependent on the target's race (i.e., same-race vs. other race). The influence for our study came from Sessa et al. (2014), which examined differences in white participants' empathetic responses to the painful experiences of same-race versus other-race individuals. Sessa et al. (2014) measured empathy implicitly. In contrast, we propose using an explicit measure of white participants' empathetic responses to sadness in same-race versus other-race targets. We hypothesize that empathetic responses will vary by race, with participants displaying stronger empathy in response to same-race targets. We will recruit our sample from undergraduate psychology students at Georgia College, which will be predominately white. Participants will complete an online pretest measuring trait empathy prior to coming to the lab. In the lab, participants will listen to an audio recording simulating a counseling session with a client who is sad. Participants will respond to a survey measuring their empathetic reaction to the client, whose race will be manipulated by showing a picture along with the audio recording. Statistical analyses will be used to compare participants' empathetic responses to same-race versus other-race targets. Trait empathy will be used as a control variable in the analyses. The existing body of research suggests neurological differences in reaction to race; we attempt to discover how these differences manifest themselves overtly.

11:30am – **1 Impact of Target Socioeconomic Status on Perceptions of Adolescent Offenders** 3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Alina Korzekwa, Jessica Love, Gabrielle Smith

Faculty Mentor: Dana Wood

Ample evidence shows that race plays a role in perceptions of adolescent offenders, with minority youth being viewed as more culpable for their crimes, more likely to reoffend, and deserving of harsher punishment than White youth (e.g., Bridges & Steen, 1998; Graham & Lowery, 2004). Other work has shown that judges who have a White preference (as measured on the Implicit Associations Test (IAT)) recommend harsher punishments for hypothetical offenders when primed with words that invoke negative stereotypes about African Americans (Rachlinski, Johnson, Wistrich, & Guthrie, 2009). However, less is known about how an offender's social class background influences people's perceptions of him or her. A recent court case in Texas, in which a wealthy 16-year-old was sentenced to only 10 years probation for killing four pedestrians while driving drunk, suggests that adolescent offenders from wealthy backgrounds are viewed less harshly and receive lighter punishments than those living in poverty. The primary goal of this study is to examine how an adolescent's socioeconomic (SES) background affects people's perceptions of him or her.

Participants for this work are being drawn from the Georgia College psychology subjects pool (N = 80). Each participant reads a vignette about a hypothetical adolescent offender who has allegedly committed a minor crime. Half of the vignettes depict adolescents from high SES families, whereas the other half depicts youth living in poverty. After reading the vignette, participants respond to items adapted from Graham and Lowery (2004) regarding the adolescent's personality traits, culpability, expected recidivism, and appropriate punishment. I hypothesize that youth from low-SES will be judged more harshly than those from high-SES families. We are currently in the process of conducting repeated-measures analyses of variance to determine whether the hypothesis is supported.

11:30am – **1 Light Wavelength Discrimination in *Betta Splendens*: An Exploratory Study** 3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Victoria Allyn, Kristina Bausum, Boston Chandler, Jessica Wheeler

Faculty Mentor: Kristina Dandy

We conducted an exploratory study where we exposed four experimentally non-naive female Betta fish to a plus maze. Each arm of the maze was illuminated by either a red, yellow, blue or green LED light. Fish were trained to locate food in the arm illuminated by the target color. Once fish entered the arm corresponding to the target color, food was delivered at the end of that arm. A trial was completed once fish consumed the food or 300 seconds elapsed. Performance was considered stable when no more than two errors were made across two days of testing. Once stable, the target color was switched to one of the remaining three wavelengths. Only three fish met proficiency on the first target color. Although inconclusive, the data shows steady learning curves for all fish across wavelengths tested. We can infer that fish were capable of differentiating between some wavelengths because fish initially made more errors when the target color was changed. It is possible that distinguishing between four different wavelengths was too difficult for the fish. Future work should modify this task to include discrimination between two illuminated arms at once. Errors could also be attributed to lack of motivation; some fish did not eat all food in time allotted. We suspect fish may have demonstrated foraging behavior as several subjects showed arm checking behavior. An understanding of stimuli that control Betta fish behavior will open future lines of research investigating the reinforcing effectiveness of stimuli in the fish's natural environment.

11:30am – **1 Molecular Docking Studies of Novel Flavonoid Derivatives as Dual Binding Site Acetylcholinesterase Inhibitors** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Garrett Layfield, Bliia Lor*

Faculty Mentor: Chavonda Mills

Studies show that one of the many factors contributing to Alzheimer's disease is the hydrolysis of acetylcholine (ACh) from the enzyme acetylcholinesterase (AChE). The resulting decrease of ACh concentration in the brain has been linked to complications including, but not limited to, memory loss and uncontrolled muscle movements. Research has also found that AChE inhibitors decrease the rate at which ACh is metabolized, therefore increasing the concentration of ACh in the brain. Furthermore, the recent identification of multiple binding sites within AChE presents the opportunity for the design of dual binding site inhibitors. Flavonoids, naturally occurring compounds, are known for their ability to inhibit AChE and can serve as potential dual binding site AChE inhibitors. In the current research study, Autodock 4.0 in addition to Autodock Vina were used to provide binding free energy values of several novel ligands of interest. Inhibitory concentration (IC50) values were then calculated, and the results aided in the identification of promising novel flavonoid derivatives as dual binding site AChE inhibitors.

11:30am – **1 Molecular Identification of Prey from a Maternity Colony of Brazilian Free-tailed Bat (*Tadarida brasiliensis*) in Lamar County, Georgia** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Carson L. Bowers, Andrew Wright*

Faculty Mentor: Gretchen Ionta

Predator-prey relationships are a crucial component of community ecology, and predator-prey studies inform our understanding of how predator populations influence the density and distribution of prey populations and vice versa. Bats are known to significantly influence populations of their insect prey and impact regional agricultural production when insect pests are consumed as prey. Although bats in the southeastern United States are typically considered to be generalist insectivores, previous diet studies suggest that some species exhibit prey preferences. However, most of these studies rely on morphological identification of dietary items, and may be biased towards hard-bodied or easily identified prey items. Additionally, direct observation of predation events and prey items consumed is often impractical due to the nocturnal nature of bats. Using DNA-based techniques we will identify prey from fecal samples collected from a colony of Brazilian free-tailed bats between May and September 2015. Prey genera and species will be recognized by comparison of the oxidase subunit I gene of cytochrome c (COI) isolated from fecal samples to sequences in GenBank and the Barcode of Life Data System (BOLD), thus allowing for the inference of trophic linkages between these bats and their prey populations in Lamar County, GA.

11:30am – **1 Perceptions of Adolescents with Physical Disabilities** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Bradleigh Carpenter, Hannah Hagley, Courtney Harden, Jada Johnson, Gabrielle Smith, Rachael Waldrop, Dana Wood*

Faculty Mentor: Dana Wood

Description Pending

11:30am – **1 Perceptions of Race, Gender, and sexuality via social media profiles** 3rd Floor Commons (Health Sciences Building)
12:15pm *Presenters: Payton Cantrell, Kimberly Mulkey, Jhoana Padron*

Faculty Mentor: Ashley Taylor

It has been consistently demonstrated in the psychological literature that perceptions of race and sexual orientation are linked to more negative evaluations and discriminatory treatment for African-American and gay communities (Cirakoglu, 2006; Hurd et al., 2014). Although perceptions of race and sexual orientation have often been examined as separate constructs, there are few studies that examine how these identities are perceived simultaneously. The double jeopardy hypothesis suggests that individuals belonging to two minority groups receive distinctive discrimination for one of the minority groups plus distinctive discrimination for the other, equaling to a greater amount of discrimination. However, intersectionality theory posits that holding minority status in more than one group creates a distinct, not additive experience for those individuals (Purdie-Vaughns & Eibach, 2008).

The current study evaluates each theory by investigating whether women who identify as both a racial and sexual minority (e.g. gay and black) are perceived more negatively than women who hold one (e.g. gay and white) or no marginalized statuses (e.g. heterosexual and white) (Taylor, Charlton, & Ranyard, 2012).

A sample of 84 college students were asked to evaluate several social media profiles that varied on the basis of race and sexual orientation. Participants then identified which of these profiles were most characteristic of a series of positive and negative traits.

Forthcoming analyses will utilize a repeated measures analysis of variance to examine the relationship between social identities and perceptions. In accordance with the double jeopardy hypothesis, we expect that profiles with multiple marginalized identities will receive fewer positive and more negative nominations.

11:30am – 12:15pm **1 Prevalence of *Brucella suis*, *Campylobacter jejuni*, *E. coli* O157:H7, and *Yersinia enterocolitica* in Georgia's Feral Pig Communities** 3rd Floor Commons (Health Sciences Building)

Presenters: Dave Bachoon, Jyoti Lama

Faculty Mentor: Dave Bachoon

Feral pigs carry zoonotic pathogens and can disseminate these pathogens to domestic pigs, other animals, and humans. Fecal samples were collected from 64 feral pigs from ten counties in Georgia. DNA was extracted from the fecal samples and assayed using qPCR for *Brucella suis*, *Campylobacter jejuni*, *E. coli* O157:H7, and *Yersinia enterocolitica*. Out of 64 samples analyzed, *B. suis* was detected in about 21% of the pigs and *E. coli* O157:H7 were detected in 9% of the feral pigs. However, *Campylocater jejuni* and *Yersinia enterocolitica* were not detected in any of the pig samples. Feral pigs represent a growing threat to public health and agriculture in the State of Georgia.

11:30am – 12:15pm **1 Quantitative identification of volatile organic compounds and free base nicotine present in electronic-cigarette vapor via GC/MS detection** 3rd Floor Commons (Health Sciences Building)

Presenters: Elaine Smith

Faculty Mentor: Catrena Lisse

The rising popularity of electronic cigarettes and the congruent lack of regulations is cause for concern. Electronic cigarettes contain a heating mechanism which vaporizes a mixture of propylene glycol with flavoring compounds and nicotine.¹ Electronic cigarette vapor is known to contain some of the same harmful compounds as traditional cigarettes, including volatile organic compounds.² Additionally, the reported concentrations of nicotine in many e-cigarette liquid solutions vary greatly from the measured amounts.³ Environmental Tobacco Smoke (ETS) includes second-hand, side-stream, and third-hand smoke, which is when harmful chemicals from smoke or vapor are absorbed into cloth. Volatile organic compounds found in ETS are identified by analyzing the headspace of cloth samples exposed to electronic cigarette vapor via gas chromatography/mass spectrometry (GC/MS). This presentation encapsulates the quantitative results and plans for future work.

11:30am – 12:15pm **1 Right Tibiofemoral Joint Injury in a High School Athlete: A Case Report of a Post-Surgical Quarterback and Pitcher** 3rd Floor Commons (Health Sciences Building)

Presenters: Autumn Keller

Faculty Mentor: Mandy Jarriel

Objective: To present the case of rehabilitation treatment for a high school football player quarterback post-season and baseball pitcher pre-season from an ACL reconstruction, Meniscal tear, and Lateral femoral condyle fracture surgery.

Background: Patient presented with pain on the lateral portion of the knee after a quarterback keeper play where he attempted a run up the middle while making a move to cut left, he planted his right leg for continued motion of take-off to move the football up field during a game. The on field evaluation showed abnormal mobility in the right knee; however, further bilateral comparison made for inconclusive results. Once moved to the sideline further testing was administered. Post-injury X-Rays and MRI revealed a completely ruptured anterior cruciate ligament, possible meniscal damage, and a lateral femoral depressed fracture. **Diagnosis:** The diagnosis was a complete rupture of the anterior cruciate ligament, lateral meniscus flap tear, and lateral femoral condyle depressed fracture. **Conclusion:** A combination of steady communication with the athlete about how they are feeling, coupling therapeutic rehabilitation and modalities to increase ROM and decrease pain will help to promote healing and keep the treatment plan effective to get the injured football player ready for the upcoming baseball season all while ensuring to not move too quickly and not hold the athlete back in order to decrease the risk of re-injury once returning to play.

11:30am – 12:15pm **1 Searching for and categorizing Star Forming Regions in Merging Galaxies.** 3rd Floor Commons (Health Sciences Building)

Presenters: Joseph Ronca

Faculty Mentor: Donovan Domingue

Galaxy Mergers are the slowest but the most interesting interactions we can see in the Universe. One possible consequence of a pair of merging galaxies is an increase in star formation. H α emission is a powerful tool to detect star forming regions in distant galaxies. H α imaging is done using a narrowband filter that measures light with wavelength 656.28 nm. This specific wavelength is important because it is the light emitted when Hydrogen undergoes the n=3 to n=2 transition in the Balmer Series. The light from this transition series indicates the presence of young extremely hot stars exciting the nearby Hydrogen, whose electrons eventually cascade back down from the excited state emits the observed light. The imaging process was tested on NGC 6946, a large non-interacting spiral galaxy,

and is now being applied to merging pairs of galaxies.

11:30am – 12:15pm	1 Skeletal Variation within Gray Squirrels from Putnam County, Georgia <i>Presenters: Courtney Medcalf, Courtney Moon</i> <i>Faculty Mentor: Alfred Mead</i> Intraspecific and intersexual skeletal variation was analyzed in a sample of gray squirrels (<i>Sciurus carolinensis</i>) from Putnam County, Georgia. Eight standard measurements were recorded on 107 skeletons (60 females, 47 males) housed in the Georgia College Recent Mammal Collection. Measurements included humerus greatest length from head, humerus distal breadth, radius greatest length, radius distal breadth, femur greatest length from head, femur distal breadth, tibia greatest length, and tibia distal breadth. The squirrels had perished due to domestic pet kills, road-kills, hunter harvests, and one apparent electrocution. Understanding skeletal variation is important for extant species/subspecies designations. It is also useful in understanding the possible range of variation in related extinct species.	3rd Floor Commons (Health Sciences Building)
11:30am – 12:15pm	1 Strategies to Challenge Compassion Fatigue in Oncology Nursing <i>Presenters: MacKenzie McDaniel, Abigail Pickens, Halley Smith</i> <i>Faculty Mentor: Monica Ketchie</i> Compassion fatigue, often referred to as burnout, may occur when care is provided in an environment that requires continuous emotional challenges. The prevalence of compassion fatigue is a growing phenomenon for oncology nurses due to the poor prognosis of patients and their frequent interactions with death. This can negatively impact their personal lives, which increases their risk for developing mental and physical health issues. As a result, nurses can develop job dissatisfaction and the risk for errors may increase. A literature review of quantitative studies was conducted to determine the most effective interventions for combating compassion fatigue. Three independent reviewers assessed the eligibility of each study for specified criteria (quantitative, single-study, nursing-based, and peer-reviewed), located within the CINAHL, ProQuest, and Galileo databases. Evidence supports that education and training sessions decrease the prevalence of compassion fatigue. Potential limitations to this review are studies had the inability to control for extraneous variables that may contribute to job dissatisfaction, which may influence compassion fatigue. Overall, nurses should be encouraged to attend training sessions, seek psychosocial support, and continue education in order to challenge compassion fatigue within the oncology field.	3rd Floor Commons (Health Sciences Building)
11:30am – 12:15pm	1 Synthesis of Acetylcholinesterase Inhibitors from Novel Flavonoid Derivatives for the Treatment of Alzheimer's Disease <i>Presenters: Andrew Denning, Jessica Dephillips, Sarah Martin</i> <i>Faculty Mentor: Chavonda Mills</i> Research has shown that Alzheimer's patients have less of the neurotransmitter acetylcholine (Ach) expressed in the brain when compared to normal patient's levels. The hydrolysis of Ach by the enzyme acetylcholinesterase (AChE) is proposed to be the reason as to why this decrease exists. Inhibiting acetylcholinesterase has been identified to be a viable option as treatment for cognitive deficit in Alzheimer's disease. Natural products like Flavonoids exhibit inhibitory activity towards acetylcholinesterase and show promise for the treatment of Alzheimer's disease. Synthesis of novel flavonoid derivatives will be advanced through the use of rational drug design to incorporate nitrogen-containing fused heterocyclic rings in an effort to propose an effective treatment of Alzheimer's disease, as they were identified through SAR as crucial structural elements.	3rd Floor Commons (Health Sciences Building)
11:30am – 12:15pm	1 Synthesis of Alpha, Beta Unsaturated Carboxylic Acids and Their Transformation to Cyclobutane Derivatives Using Solid State Reactions <i>Presenters: Alexandra Hanna</i> <i>Faculty Mentor: Koushik Banerjee</i> Cyclobutane derivs. have exhibited pharmaceutical uses in being anti-inflammatories, and immunosuppressant, while cinnamic acid derivs. are well known for its antidiabetic properties. We have used a newly developed green Knoevenagel condensation reaction to access cinnamic acid derivs., for example 4-Bromocinnamic acid in 86% yield. Herein, we will disclose synthesis of several other cinnamic acid derivs. via novel green reaction condition and their subsequent transformation to cyclobutane derivs. using solid-state photochem. conditions.	3rd Floor Commons (Health Sciences Building)
11:30am – 12:15pm	1 Synthesis, Purification, and Characterization of the Wonder Drug, Aspirin <i>Presenters: Ally Eubanks, Sydney Ninneman</i> <i>Faculty Mentor: Catrena Lisse</i> Aspirin is one of the most well-known drugs around the world because of its variety of uses, such as the treatment of blood clots, pain, and inflammation.(1) Aspirin, or acetylsalicylic acid, was synthesized using salicylic acid, acetic anhydride, and a sulfuric acid catalyst to produce a crude sample with a 68.4% yield. The crude sample was purified through recrystallization. Characterization with melting-point analysis, FT-IR spectroscopy, and 1H-NMR proved the sample to be aspirin.	3rd Floor Commons (Health Sciences Building)

11:30am –

12:15pm

1 Tactile Based Learning With the Georgia Academy for the Blind

3rd Floor Commons (Health Sciences Building)

Presenters: Carrie Cooper

Faculty Mentor: Matthew Forrest

I have been researching and studying how tactile art is created and utilized at the Georgia Academy for the Blind. My mentor and I have been creating screen prints at the Georgia College print shop for the students at the academy for the duration of the fall semester 2015. Two of the techniques we used are spreading embossing powder over top wet ink and applying heat to create a raised surface so the students can feel the outlines of the image and then are able to color it in themselves as well as using a process called flocking to create a fuzzy, textured feel to the inks. Over the course of the semester we have worked hard to produce a tactile coloring book for the students to be able to take home and color as well as share with their families and friends. I would like to present a poster with the information about what tactile art is and how it is utilized as well as present a short instructional demo to teach the audience what creating tactile artworks looks like. We will provide our own supplies for the demo.

11:30am –

1 The Development of a Retina Controlled Prosthetic Device for Human Augmentation

12:15pm

Presenters: Cristalei Polk

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Hauke Busch

We are using LabVIEW to design and build a retina controlled prosthetic limb that can be used to help augment individuals with disability. Due to the recent wars, there has been an increase in injured veterans returning with the need of a prosthetic limb. Traditionally, prosthetic limbs have been passive devices; our design would make it an active device. The immediate objective of this research project is to understand the capabilities of LabVIEW and construct an original artificial limb. The prototype will be controlled through Virtual Instruments (VIs) and a National Instruments device called, MyRIO. Other applications of this research can be implemented into wheel chair operations with individuals with more severe disabilities.

11:30am –

1 The Diversity of Parasitic Worms Harbored by Feral Pigs in Georgia

3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Dave Bachoon, Amanda Davis

Faculty Mentor: Dave Bachoon

Feral swine often encroach on farmlands and are a growing problem in the Southeastern United States. These wild hogs may carry intestinal parasites (e.g. worms) that can be transmitted to farm-raised pigs. Domesticated swine are often dewormed regularly to prevent chronic infections of intestinal parasites. Common intestinal parasites of swine include helminths such as: Ascaris, Strongyles, Trichuris and Strongyloides. These helminths live and reproduce in the intestines of the swine, the eggs can be seen microscopically in a stool sample. Stool sample of feral pigs were mixed one gram of stool in a flotation solution with a specific gravity between 1.018-1.027. The sample were mixed thoroughly and allowed to sit undisturbed for at least ten minutes, then the sample were loaded onto a McMaster slide and the ova were counted and the eggs per gram was calculated. 62% of adult feral swine in Georgia were infected with ranging amounts (10- 154 eggs per gram, average of 94 eggs per gram) of Strongyle type eggs. However, 100% of juveniles contain large amounts of Ascaris suum averaging 1317 eggs per gram of feces.

11:30am –

1 The Feasibility of a Bladeless Wind Turbine Design

3rd Floor Commons (Health Sciences Building)

12:15pm

Presenters: Austin Card, Chukwuemeka Ibebuike, Anderson Kendrick

Faculty Mentor: Hauke Busch

The reductions of CO2 emissions are of significant importance to humanity. Wind power can offer a better alternative to generate sustainable power without producing CO2. Traditional turbines consist of rotating blades while a bladeless turbine would significantly simplify the design. This would offer potential improvements such as cost savings, reduction of operating noise level, simplification of the manufacturing process, reduction of maintenance costs, and incorporation of eco-friendly features. Past experiments helped optimize the shape and design of the bladeless turbine. Presently, our experiments are focused on 3D printing prototypes and evaluating the efficiency and power production of various turbine designs.

11:30am –

1 The Relationship Between Self-Perceived Stress and Total Body Water in College Students

12:15pm

Presenters: Jennifer Granade, Alexander Kelly, Johnathon Lawson, Katherine Perry, David Sullivan, 3rd Floor Commons (Health Sciences Building)

David Sullivan

Faculty Mentor: Emily Simonavice

Background: American college students are highly susceptible to stress, both acute and chronic. Studies have shown that stress can lead to physiological as well as pathological issues. Purpose: The purpose was to assess 30 traditional college aged students (20 males: 21 ± 2 years and 10 females: 21 ± 1 years) to determine if stress was related to the total body water of an individual. The study also correlated results from the InBody570 including: height, weight, age, dry lean mass, total body water and fat mass with self-perceived stress scores (Self-Perceived Stress Questionnaire). Methods: Participants were required to fill out a self-perceived stress questionnaire, an informed consent document and an exclusionary checklist, and then perform an InBody scan to determine body composition (lean body mass, fat mass, and total body water). Results: A Pearson Product Moment Correlation analysis revealed that there was no statistically significant correlation between total body water and a subject's self-perceived stress score ($r=0.08$, $p=0.658$). Conclusion: Results showed that there was no correlation between the variables of total body water and

self-perceived stress score, rejecting the research hypothesis. Future research requiring longer fasting periods, larger sample size as well as other testing procedures measuring sodium and hormone levels may be needed to show correlation between total body water and self-perceived stress score.

11:30am – **1 Unified P.E. - Winning in More Ways than One** 3rd Floor Commons (Health Sciences Building)
12:15pm

Presenters: Haley Ashworth, Abigail Norman

Faculty Mentor: Nicole DeClouette

Unified Physical Education programs bring students together by providing opportunities for students with disabilities and their non-disabled peers to form relationships on and off the court. The class consists of athletes of all kinds coming together to practice for the Special Olympic Games, and the ultimate goal, to build lasting relationships that shatter stereotypes and walls that have been built by our society. General education athletes must go through an application process in order to be given the privilege of being involved in this program. Unified P.E. coaching staff is typically composed of highly qualified and dedicated individuals such as special education teachers, general education teachers, and paraprofessionals. In a Unified P.E. class, one can witness so much more than just athletics. Schools are able to establish a culture of acceptance when peers are given the opportunity to interact with one another on a common ground. There are real and lasting friendships that have formed over years of positive interaction as a result of this program.

11:30am – **1 Using an Atomic Molecular Optics Laboratory for Undergraduate Research and Mentoring of Physics Students in Georgia** 3rd Floor Commons (Health Sciences Building)
12:15pm

Presenters: J'barri Marshall, Cristalei Polk

Faculty Mentor: Hauke Busch

An Atomic and Molecular Optical (AMO) Physics research lab is an excellent tool to train and mentor undergraduate students in advanced laboratory techniques. Students gain valuable basic experience in experimental designs, data acquisition techniques, working with high precision optical equipment, building electronics, and working in the machine shop.

The current project is building the temperature controller for a slave laser. The temperature controller will be used to drive a Peltier cooler that receives feedback from a thermocouple that is imbedded with the Peltier cooler into the previously built laser mount. The temperature controller will help to temperature stabilize the laser used for trapping Rb atoms. Previously completed projects involved building a current supply circuit, machining the laser mount, milling the vacuum chamber mounts to support the chamber, and machining the Helmholtz coils for the chamber, which are being used to trap the atoms in a Magneto Optical Trap (MOT). This included designing, building, and baking out the vacuum chamber, constructing a trap for the Rb in the chamber, and building the lasers for a saturation-absorption system that is used to probe the $52S1/2\% \text{ } \tilde{O} 52P3/2$ hyperfine energy transitions of the Rb-85 atom. These energy transitions will be used to frequency-lock a diode laser to trap Rb-85 atoms and then cool them to ultra-low temperatures. The atom cooling will permit observation and measurement of the fundamental properties of atoms.

11:30am – **1 Using Yoga in the Classroom to Improve Mindfulness** 3rd Floor Commons (Health Sciences Building)
12:15pm

Presenters: Jessica Chaloult, Morgan McGrane

Faculty Mentor: Nicole DeClouette

We will explain the benefits of using yoga in the classroom to improve the mindfulness of students in special education classrooms. We will provide research on how yoga has improved behavior and self-control and promotes focus in students. We will give examples of ways that yoga can be integrated into the daily classroom routine and explain how yoga is a great way to incorporate movement into classroom learning for all students in both general education and special education. We will provide descriptions of students with specific disabilities and explain how yoga will meet their individual behavioral and emotional needs. We will also provide research results from a local classroom that uses these techniques to improve behavior management of students with emotional behavioral disabilities.

11:30am – **1 Visual Screening of Fluorescent Micrographs: Sec6-GFP Localization in S. Cerevisiae DAmP library** 3rd Floor Commons (Health Sciences Building)
12:15pm

Presenters: Raira Ank, Ellen France, Sarah Mork, Tristan Peterman

Faculty Mentor: Ellen France

Exocyst complex is a highly conserved octomeric protein complex that mediates a step in polarized vesicular trafficking. First discovered and characterized in *Saccharomyces cerevisiae*, much work has been focused on elucidating specific roles each subunit plays. Previous study on SEC6 based on temperature sensitive sec6-49 and sec6-59 alleles indicated severe temperature sensitive growth and secretion defects. Interestingly, the trafficking of secretory vesicles to the plasma membrane is unimpaired, yet none of the Exocyst subunit is polarized. Biochemical analyses examining the state of exocyst assembly in sec6-49 mutant background show that the complex is intact at non-permissive temperature, which led us to hypothesize that Sec6p has important anchoring function for the Exocyst, and that the mislocalization of Exocyst may stem from compromising Sec6p interaction with unknown factors. In this study, we visually examined the fluorescence micrograph data showing the localization of Sec6-GFP in DAmP yeast

library strains where individual essential gene mRNA has been systematically reduced four to ten folds via mRNA perturbation. Mislocalization of SEC6-GFP under reduction of specific gene expression may help us identify novel interactors that regulate Sec6 localization, which in turn will shed light on mechanistic details of Sec6 function as well as Exocyst assembly.

11:30am – 12:15pm **1 What Role does Prion Research Play in the Management of Chronic Wasting Disease?** 3rd Floor Commons (Health Sciences Building)

Presenters: Elizabeth Lemley, Michael Poschel

Faculty Mentor: Mike Gleason

Chronic Wasting Disease (CWD) is an always fatal infection that afflicts deer and elk (family Cervidae) populations of the United States. The first case of CWD was diagnosed in 1967 in Colorado and it was soon identified as a being due to an aggregate of the prion protein (PrP), similar to the scrapie prion in sheep, based on the diseased animal's gross motor and behavioral abnormalities as well as tell-tale neurohistological changes. The pathological aggregation of PrP protein in various mammalian prion diseases may occur spontaneously, be due to a genetic mutation, or be acquired by ingestion of the infectious protein aggregate. While the disease is thought to be spread by infection, the origin of the disease within Cervidae populations and how it is passed among individual cervids remains unclear. The highest levels of CWD-infection occur in Colorado, Wyoming, and Wisconsin. A census taken in Wisconsin, 2013 showed that an estimated 6.1% of adult White-tailed deer and 2.4% of yearlings had developed the illness (Storm, 2013). However, new pockets of infection have begun to appear in other states. Current wildlife management outlooks focus on surveillance of affected deer populations and controlling the transport of deer even going as far as destroying an entire herd if one deer has tested positive for the disease. This study will seek to summarize the nature of prion disease, how CWD is passed among cervids, and the current management options and possible future outcomes of the disease.

11:30am – 1:00pm **R Mid-Conference Reception** 3rd Floor Commons (Health Sciences Building)

12:15pm – 1:00pm **2 Analyzing the Kinetics of a Bromophenol Blue Solution in a pH Dependent Reaction** 3rd Floor Commons (Health Sciences Building)

Presenters: Zeljka Popovic

Faculty Mentor: Ronald Fietkau

Bromophenol blue is a common pH indicator and dye used in many different industries. A solution of bromophenol blue is known to be dichromatic, meaning that the exact color hue of the solution varies on the concentration and thickness of solution, but is characterized as a green red color. Once a solution of bromophenol blue is placed in a concentrated basic solution, the color fades from a blue/violet color to clear solution if the pH of the basic solution is 4.6 or greater. The rate law of the reaction is analyzed through the use of a small footprint visible-near-infrared spectrometer (Vis-NIR) with a diode array detector. An absorbance wavelength of 590 nm as a function of time was collected using Ocean Optics OceanView software. The results contained in the data collection file are exported to a spreadsheet for further processing to determine the kinetics of the reaction.

12:15pm – 1:00pm **2 Breaking Bad: Aspirin Edition** 3rd Floor Commons (Health Sciences Building)

Presenters: Emily M. Bullington, Elizabeth L. Katafias, John F. Long, Melanie Schellman

Faculty Mentor: Catrena Lisse

In a survey conducted by the Household Component of the Medical Expenditure Panel in 2005, 19.3 percent of United States adults reported consuming aspirin every day or every other day, making it one of the most widely used over-the-counter drugs in the United States. [1] This level of usage stresses the importance of synthesizing aspirin on a regular basis. Acetylsalicylic acid, more commonly known as aspirin, was synthesized by combining salicylic acid, acetic anhydride, and sulfuric acid as a catalyst. The crude product was then recrystallized to eliminate impurities and the sample's purity was then determined by a melting point test and thin-layer chromatography. It was found that by performing recrystallization many of the impurities in the crude product were eliminated. These findings were supported by characterization through ¹H NMR, IR, and titration. This presentation will highlight the research techniques and method development used to synthesize aspirin. References: 1 Soni, A. Aspirin Use Among the Adult U.S. Non-institutionalized Population, With and Without Indicators of Heart Disease. Medical Expenditure Panel Survey, http://meps.ahrq.gov/mepsweb/data_files/publications/st179/stat179.pdf (accessed Mar 10, 2016).

12:15pm – 1:00pm **2 Description of a Pathologic White-tailed Deer Mandible from Central Georgia** 3rd Floor Commons (Health Sciences Building)

Presenters: Patrick Powers

Faculty Mentor: Alfred Mead

Dental anomalies in white-tailed deer (*Odocoileus virginianus*) are fairly uncommon, but particular cases pertaining to bacterial, parasitic, and non-parasitic diseases in addition to mandibular fractures have been noted. A pathologic mandible was observed in a male deer between the ages of four and five years harvested in central Georgia during the 2015 fall hunting season. During soft tissue removal in the laboratory, the deer displayed signs of premortem trauma to the lower mandible. Upon further inspection, the observed injury was consistent with secondary bone deposition associated with bone fracture or bone infection due to a soft tissue injury. A physical examination of 356 white-tailed deer mandibles collected from central Georgia failed to find any other examples of this type of pathology. The frequencies of mandibular pathologies among deer are not well documented, but research suggests that many of these anomalies do not result in permanent disability or premature death of the affected animal. This particular deer

displayed no outward indication of the injury at the time of death and showed no signs of irregular tooth attrition that often accompanies damage sustained to the lower jaw, suggesting that this injury was in the process of healing.

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- 12:15pm – 1:00pm **2 Design and characterization of a sol-gel glucose biosensor** 3rd Floor Commons (Health Sciences Building)
Presenters: Martin Alcantar
Faculty Mentor: Catrena Lisse
Sol-Gels are porous crystalline structures made of silicon oxides. These materials have several applications in industry and optics and may serve as biological or chemical sensors. Sol-gels are ideally employed as sensors due to: (1) no interference of the gel with the encapsulated enzyme's reactivity, (2) increased protection of sensitive materials, (3) the ability to change the size of pores and (4) the observed high purity of the gel and easy processing at room temperature¹. In this undergraduate research project, sol-gels were doped with horseradish peroxidase and glucose oxidase to design a biosensor capable of the detection of glucose via the use of UV-Vis spectroscopy. Kinetics studies were employed to analyze enzymes and compare assays of enzymes. This presentation summarizes the preliminary results and experimental method development.
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- 12:15pm – 1:00pm **2 Determination of the Binding Site of Adenovirus E4orf3 and Ddx6** 3rd Floor Commons (Health Sciences Building)
Presenters: Molly Lawson, Julia A. Weinrich
Faculty Mentor: Kasey Karen
Adenovirus is often associated with localized infections in areas such as the respiratory or intestinal tract. It is a double-stranded DNA virus with a 36kb genome encoding 30-40 genes. The life cycle begins with the viral genome entering the cell and activating early gene transcription. E4orf3 is an early gene that activates the synthesis of late viral proteins and shuts down host cell protein synthesis. Ddx6 is a cellular protein present in cytoplasmic processing bodies (P-bodies), which are responsible for regulating gene expression by degrading mRNAs and repressing host cell translation. Ddx6 is known to bind to the Ad5 E4orf3 protein, but not the Ad9 E4orf3 protein. Chimeras are being created using different combinations of both the Ad9 and Ad5 E4orf3 genes in order to narrow down the binding site of Ad5 E4orf3 to Ddx6. Locating this binding site will be accomplished by transfecting the plasmids into the cells and doing co-immunoprecipitations with the Ad5/Ad9 chimeric E4orf3 and Ddx6 proteins. The co-immunoprecipitations will facilitate determination of the binding site of E4orf3 for Ddx6, which will ultimately help in the study of the function of this binding during an infection. Currently, work is still being done on E4orf3 chimera cloning and transfection protocol optimization. Since adenovirus is a model for both virus and cellular biology, knowledge of these interactions could elucidate additional functions of the cellular P-bodies as well as be applicable to other viruses.
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- 12:15pm – 1:00pm **2 Determination of Zinc, Copper, and Iron in Multivitamin/multimineral Tablets** 3rd Floor Commons (Health Sciences Building)
Presenters: Shannon Stephenson, Sarah Willis
Faculty Mentor: Ronald Fietkau
A fast growing industry is the nutritional supplement group known as Vitamins, Minerals, and Supplements (VMS). Both name brand and generic multivitamin/multimineral tablets are widely available. Tablets contain mg quantities of several minerals. Of interest in this study are zinc, copper, and iron which are typically present in the tablets at the 100% level recommended dietary allowance (RDA). The amount of zinc, copper, and iron in several multivitamin/multimineral tablet brands were determined using the Flame Atomic Absorption Spectrometry (FAAS). The tablets were digested with 3 molar nitric acid and then diluted prior to analysis by AAS. Results obtained were consistent with quantities listed on the labels of the bottles.
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- 12:15pm – 1:00pm **2 Down Syndrome - It's Only an Extra Chromosome** 3rd Floor Commons (Health Sciences Building)
Presenters: Maggie Duran, Katie Fry, Rachel Weaver
Faculty Mentor: Nicole DeClouette
What does Down Syndrome mean to you? Disability, genetics, or something more? We acknowledge that genetics play a role, but instead of getting stuck on science join us to dig deeper and consider how people with Down Syndrome are really just like you and I. People with Down Syndrome continue to make contributions to friendships, inclusion, careers, and film. There are endless myths about Down Syndrome, however with every myth there is a truth. Rather than focus on genetics, focus on the truth that Down Syndrome is a natural human variation. After all, it's only an extra chromosome! You can never have too much of a good thing.
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- 12:15pm – 1:00pm **2 Educating Students with Autism in America and England** 3rd Floor Commons (Health Sciences Building)
Presenters: Sarah Cook, Matthew Pelli
Faculty Mentor: Nicole DeClouette
Educating Students with Autism in America and England will be comparing the American and English education services for students with severe and profound autism in a specialized setting. A comparison will be drawn between Queensmill School in London, England and Melmark School in Boston, Massachusetts. Educating Students with Autism in America and England will provide insight into what the classroom and school environments look like, the

amenities they offer, and what was learned through research and personal experiences. Educating Students with Autism in America and England will give an outlook on how students with severe autism can be successfully educated.

12:15pm – 1:00pm

2 Effects of Induced Mindfulness on Attention Regulation

3rd Floor Commons (Health Sciences Building)

Presenters: Victoria Allyn, Nicolle Crespo, Chanse Denmon, Cameron Fulco, Nichole Gilbert, Sean Groark, Sara Moore, Paige Rogers, Jessica Wheeler

Faculty Mentor: Diana Young

Background: Mindfulness can be described as a state of awareness and openness towards one's present experiences. Individuals can utilize mindfulness techniques to clear one's mind of distraction. Cognitive research examining mindfulness suggests that inducing a mindful state would improve attention regulation in the presence of distractions. The current study aims to further examine the effects of mindfulness meditation on attention regulation in the presence of both auditory and visual distractions. It is hypothesized that induced mindfulness will improve attention regulation in the presence of auditory and visual distraction, leading to improved performance on attention regulation tasks. Method: In this between-groups design, participants are randomly assigned to either the mindfulness condition or the control condition. The mindfulness induction involves completing a mindful raisin-eating task. Next, participants complete two attention regulation tasks on a computer: the Stroop Task, which involves visual distractors, and an Immediate Serial Recall Task, which involves auditory distractors. Expected Results: For the Stroop Task, performance is measured via reaction time differences between "distracted" and "non-distracted" trial types. For the Immediate Serial Recall Task, performance is measured via recall accuracy differences between distracted and non-distracted trial types. Utilizing independent means t-tests, we expect to see that participants who received the mindfulness induction will have significantly better performance on both of these tasks. Discussion: If our hypothesis is supported, it would provide further evidence that mindfulness can improve cognition. Furthermore, mindfulness could be used to help improve attention regulation in everyday life.

12:15pm – 1:00pm

2 Effort Actions in Life

3rd Floor Commons (Health Sciences Building)

Presenters: Anass Ribeiro, Katelyn Sutton

Faculty Mentor: Whitney Heppner

In this ongoing study, we explored potential measurements via self-report of Effort Actions delineated by Rudolf Laban (Hodgson, 2001). Importantly, we also explored whether these self-reported effort actions in life correlated with people's actual behavior. Forty participants from Georgia College were instructed to complete a battery of questionnaires assessing personality traits. Of primary interest was the researcher-created Effort Actions in Life scale, a seven-item measure assessing the four effort actions, space, time, weight, and flow via self-report. After completing the questionnaires, participants performed an everyday task of picking up trash while being video taped in the lab. Video taped behaviors were coded by researchers blind to the study's hypothesis for behaviors that reflected, direct or indirect movement (i.e., Space). We expect to find correlation between the participant's self-reported effort actions in their personality and their behaviors during the picking up trash task. This correlation would suggest that there is a relationship between a person's personality and their movement, which could benefit dance therapy approaches to treatment by aligning people's personality with treatment targets. Discussion will center on ways to extend this line of research for the future.

12:15pm – 1:00pm

2 Electronic Health Record: The Superior Documentation

3rd Floor Commons (Health Sciences Building)

Presenters: Luke Bales, Andrew Deveau

Faculty Mentor: Monica Ketchie

Recently, healthcare has made a gradual shift from paper documentation format to electronic documentation format. This shift has been encouraged by many different factors, including efforts to minimize costs and efforts to save time by making patient charting more efficient; however, there are concerns surrounding how the change to an electronic documentation format will impact the accuracy of data. A literature review of qualitative studies was conducted to determine which form of documentation is superior and more accurate for nursing use. Two independent reviewers assessed the eligibility of each study for specified criteria (qualitative, nursing-based, and peer-reviewed), located within the CINAHL and Galileo databases. Evidence suggest that electronic documentation format is the superior method because it can reduce costs, documentation errors, and the amount of time nurses spend documenting. The results gathered provide reassurance to facilities that have embraced the use of electronic documentation and encourage other facilities to consider straying from paper documentation format.

12:15pm – 1:00pm

2 Estrogen Degradation: An 1H-NMR Study

3rd Floor Commons (Health Sciences Building)

Presenters: Nina Little

Faculty Mentor: Kimberly Cossey

Can 1H-NMR spectroscopy be used to watch estrogen degrade in real time? The degradation of estrogenic substances is widely studied for water quality and the effects these substances may have on humans and wildlife. In this work, two forms of estrogen, 17 β -estradiol (E2) and α -ethinyl estradiol (EE2) were analyzed using 1H-NMR. The goal was to determine if 1H-NMR spectroscopy could be used to monitor and calculate the rate of degrading estrogen. In previous research, the ideal 1H-NMR solvent was chosen, so that at least one 1H-NMR peak for both E2 and EE2 did not overlap. There was evidence of E2 in an older EE2 NMR sample, which suggested that EE2 was degrading to

form E2 in the NMR solvent. The sample of EE2 in DMSO degraded more quickly, so this was the ideal solvent for a study on the rate of degradation. An initial degradation study gave data that was unclear. It is believed that because the solid EE2 degraded prior to the experiment, this skewed the results. In this work, the procedure was repeated with a different method for calculations and new EE2 sample (free of degradation products). Key NMR peaks will be integrated to get E2:EE2 ratios at different time points. Then, this data will be used to determine the rate of estrogen degradation in DMSO.

12:15pm – 1:00pm

2 Exploring Possible Factors of Completion of a Wilderness Therapy Program for Substance Use Disorder

Presenters: Jesse Chapman, Nicolle Crespo, Sean Groark, Carly Salzberg

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Lee Gillis

Background: Outdoor Behavioral Healthcare (OBH) is a growing field that combines use of the outdoors with therapeutic interventions to promote positive change in those with mental health issues. As Bowen and Neill (2013) have documented in a meta-analysis, OBH programs have been shown to treat mental health, behavioral, and substance use disorders. However, clients have varying degrees of success in treatment; there is always a portion of clients who do not complete treatment. This study seeks to compare completers and non-completers of an OBH program to explore possible factors that may influence how successful clients differ from non-completers. Method: Data was collected from a 90-day OBH program in Alberta, Canada called Shunda Creek. Participants were 87 young adult males with substance use disorder, 55 completers and 32 non-completers. Participants were assessed on various measures throughout treatment, including trait mindfulness, engagement, and problematic behaviors. Expected Results: An exploratory data analysis will be conducted to determine what differences exist between completers and non-completers. More specifically, we expect to see differences in mindfulness, engagement, and problematic behavioral outcomes at various stages of treatment. Discussion: The current research is unique in that the results can be used to help the OBH program improve treatment. More specifically, it may allow staff to further understand their clients and be aware of those who may have a higher risk of not completing treatment.

12:15pm – 1:00pm

2 Eye Tracking Examination of the Confirmation Bias

3rd Floor Commons (Health Sciences Building)

Presenters: Victoria Allyn, Nicolle Crespo, Chantse Denmon, Cameron Fulco, Nichole Gilbert, Sara Moore, Paige Rogers, Jessica Wheeler

Faculty Mentor: Diana Young

The confirmation bias is the tendency for individuals to seek out information that confirms their prior beliefs rather than seeking information that goes against them (Nickerson, 1998). In the present study, the role of the confirmation bias will be explored utilizing eye tracking technology to examine the degree to which participants read both sides of a social issues debate. Eye tracking data will help narrow down where an individual's attention is drawn in regards to a visual display (Poole & Ball, 2005).

In the current study, undergraduate participants self-report on their opinions regarding 11 current social issues. Then, participants observe a series of opposing arguments ("for" and "against") that includes three out of the 11 issues. The eye tracker records the gaze and fixation times of the participants on the two sides of the debate. Research also shows that individuals are more likely to find information that agrees with their personal beliefs to be more valid than opposing information (Lord, Ross, & Lepper, 1979). To observe this, participants rated the persuasiveness of each "for" and "against" argument they read. Together, these variables provide insight into the participants' personal confirmation biases. Participants are expected to observe the side of the argument that agrees with their prior beliefs for a longer period of time than the side that does not. Participants are also expected to rate an argument as more persuasive if it validates their prior beliefs.

12:15pm – 1:00pm

2 Identification of novel interactors of SEC6 via genetic suppressor screen using a Saccharomyces cerevisiae genomic DNA library

3rd Floor Commons (Health Sciences Building)

Presenters: Raira Ank, Jyoti Lama, Sarah Mork, Emily Parrish, Tristan Peterman

Faculty Mentor: Ellen France

Exocyst complex is a highly conserved octameric protein complex that mediates a step in polarized vesicular trafficking. First discovered and characterized in *Saccharomyces cerevisiae*, much work has been focused on elucidating specific roles each subunit plays. Both *sec6-49* and *sec6-59* mutant alleles display severe temperature sensitive growth and secretion defects. Interestingly, at non-permissive conditions trafficking of secretory vesicles to the plasma membrane is unimpaired, but none of the Exocyst subunit is polarized. Biochemical analyses examining the state of exocyst assembly in *sec6-49* mutant background show that the complex is intact at non-permissive temperature, which led us to hypothesize that Sec6p has important anchoring function for the Exocyst, and that the mislocalization of Exocyst may stem from compromising Sec6p interaction with unknown factors. Our goal is to identify novel interactors of SEC6, which is thought to directly link Exocyst complex to the SNARE protein Sec9p on the plasma membrane using a classical genetic suppressor screen using multi-copy plasmid based genomic library. The isolation and characterization of novel interactors will shed light on mechanistic details of Sec6 function as well as Exocyst assembly, which is critical for elucidating mechanistic details of secretory pathway.

12:15pm – 1:00pm

2 Identification of volatile organic compounds present in cigarette smoke via purge-n-trap coupled with GC/MS

Faculty Mentor: Catrena Lisse

Recreational use of tobacco products has been proven to directly correlate to health issues identified within the users.¹ There are seventy known carcinogens present in tobacco smoke and those carcinogens are responsible for 30% of all cancer deaths in the United States.² Environmental Tobacco Smoke (ETS) incorporates second-hand, side-stream, and third-hand smoke with the latter being the focus of this project. Volatile organic compounds found in ETS, including benzene, were identified by analyzing the headspace of cloth samples exposed to cigarette smoke via purge-n-trap coupled with gas chromatography/mass spectrometry (GC/MS). This presentation summarizes the experimental design and qualitative results comparing multiple types and brands of cigarettes.

1 U.S. Department of Health and Human Services. A Report of the Surgeon General: How Tobacco Smoke Causes Disease: What It Means to You. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010 (accessed August 28, 2014).

2 American Cancer Society. Tobacco-Related Cancers Fact Sheet, 2014 (accessed August 28, 2014).

12:15pm – 1:00pm

2 Identifying the Binding site of Adenovirus E4ORF3 on Cellular Protein Ddx6

3rd Floor Commons (Health Sciences Building)

Presenters: Clint Edmunds, Michael Hammond

Faculty Mentor: Kasey Karen

Adenovirus is a double-stranded DNA virus that causes localized infections. The virus takes over the host cell through commanding control of replication machinery and inactivating repair and degradation activities. The adenovirus E411k protein functions in turning off host protein synthesis and turning on late viral gene expression. E4 11k is also known to disrupt P-bodies, cellular RNA processing bodies, through an interaction with the P-body protein, Ddx6. We hypothesize that the disruption of P-bodies is the mechanism by which E4 11k disrupts gene expression. Our goal is to identify the binding site on Ddx6 for the E4 11k protein. Ddx6 deletion mutants were created in order to remove the possible binding site from E4 11k, and a co-immunoprecipitation will be performed to determine the specific binding site of E4 11k on Ddx6. When the identification of the binding site is narrowed down to a single amino acid or single sequence of amino acids, the true function of the binding of E4 11k with Ddx6 during adenovirus infection can be identified in human cells. Additional P-body functions can be identified and could prove to be applicable in studying other viruses.

12:15pm – 1:00pm

2 Insight into Effects of Catalysts in the Synthesis of Aspirin at Varying Temperatures

3rd Floor Commons (Health Sciences Building)

Presenters: Eric Benson, John Bills, Luis Co, Kyle Cooley

Faculty Mentor: Catrena Lisse

Acetylsalicylic acid commonly known as Aspirin is an analgesic non-steroidal anti-inflammatory drug that is known as a heart attack prevention medication. In aspirin synthesis a catalyst is used to lower the activation energy of the reaction, as aspirin decomposes at the temperature at which synthesis takes place. Activation energy is met by the Gibb's free energy of the system which is directly related to the temperature of the system, which is the purpose of testing temperature ranges. This study compares the use of the two catalysts, (a) sulfuric and (b) phosphoric acid, in their efficiency of producing aspirin in regards to their purity and percent yield at different temperature ranges. The presentation will highlight the synthesis of aspirin synthesis in attempt to broaden the understanding of catalysts.

12:15pm – 1:00pm

2 Is the water safe? Analysis of water near a superfund site

3rd Floor Commons (Health Sciences Building)

Presenters: Kyler Miller

Faculty Mentor: Catrena Lisse

Often times, society risks causing environmental harm in order to achieve a goal. Because of this, the EPA has an established Superfund program that manages cleanup of the nation's hazardous waste sites.¹ These sites can cause water contamination, which is devastating to both the environment and human health. Gas chromatography/mass spectrometry (GCMS) was used to detect volatile organic compounds (VOCs), specifically benzene, trichloroethylene, and tetrachloroethylene in water from a small town in southeast Georgia where the Seven Out Superfund Site is located.²

United States Environmental Protection Agency, Superfund History <http://www2.epa.gov/superfund/superfund-history> (accessed November 24, 2015)

Silent Disaster. Seven Out Site Profile. <http://silentdisaster.org/possible-causes/seven-out-site-profile/> (accessed November 24, 2015)

12:15pm – 1:00pm

2 Kinetics of Crystal Violet Color Fading Experiment via a Small Footprint Diode Array Spectrometer

3rd Floor Commons (Health Sciences Building)

Presenters: Paige Lott

Faculty Mentor: Ronald Fietkau

Crystal violet is a pH indicator and is commonly used to classify bacteria in the medical world. In acidic solutions, crystal violet is yellow in color and at approximately the pH of 1.6, it transitions to a violet color. Over time, this violet color fades as it reacts with the CO₂ in the air until it is clear. This experiment requires a small footprint visible-near-infrared spectrometer (Vis-NIR) with diode array detector. Using the Ocean Optics software that operates the spectrometer, the absorbance of crystal violet can be measured at 585 nm in high concentrations of base as a function of time. The results from the run are copied and pasted into excel for additional analysis. The order can be determined with respect to crystal violet and base. The rate law for this reaction is first order, due to the linear graph achieved while plotting $\ln(A_{max})$ as a function of time.

12:15pm – 1:00pm

2 Mindfulness and Cognition

3rd Floor Commons (Health Sciences Building)

Presenters: Sean Groark, Nicholas Livaditis, Maria Nix, Paige Rogers

Faculty Mentor: Whitney Heppner

Mindfulness can be described as a state of heightened awareness and openness towards one's present experiences. Previous research has linked high levels of trait mindfulness to cognitive abilities such as working memory, attention span, and selective attention. The current study aims to extend this research by utilizing techniques to experimentally induce a temporary state of mindfulness via meditation and examine its impact on attention switching and attention regulation. It is hypothesized that induced mindfulness will improve attention switching and attention regulation, leading to improved performance on attention tasks. In this between-groups research design, participants are randomly assigned to either the mindfulness induction condition or the control condition. The mindfulness induction involves eating raisins mindfully, which should raise state mindfulness. Next, participants complete two attention tasks: the Emotional Stroop Task, which measures attention regulation in the face of distracting emotional stimuli, and the Trails Task, which measures attention switching. For the Emotional Stroop Task, performance is measured via reaction time differences between emotional and neutral trial types. For the Trails Task, performance is measured via completion times for the attention task. Utilizing an independent means t-test and an ANOVA, we expect to see that participants who received the mindfulness induction will have significantly better performance on both the Emotional Stroop Task (i.e., smaller time differences between trial types) as well as the Trails Task (faster reaction times). If our hypothesis is supported, it would provide causal evidence that mindful states can improve attention and cognitive abilities in general.

12:15pm – 1:00pm

2 Models Involving Interactions between Predator and Prey Populations

3rd Floor Commons (Health Sciences Building)

Presenters: Matthew Mitchell

Faculty Mentor: Susmita Sadhu

Predator-prey models are used to show the intricate interactions between predator and prey populations. In this project, we will show how these different interactions between the predator and prey populations are possible based on the choice of functional response we make. In general, a functional response is the relationship between the average number of prey eaten by each predator per unit of time versus the density of the prey population. Our choice of functional responses are motivated by the observations of the predator and prey interactions in nature. We will work with three different types of functional responses, wherein the predator and prey populations will either move towards a co-existence equilibrium state, or they will exist in an oscillatory state. These two different states will occur based on the parameters we take for our predator and prey population models.

12:15pm – 1:00pm

2 Non-Toxic Resist Screen Printing

3rd Floor Commons (Health Sciences Building)

Presenters: Morgan Sanders, Brooke Sarver

Faculty Mentor: Matthew Forrest

We are currently in a course called advanced non-toxic printmaking. Over the course of the semester, we developed a new process for non-toxic printmaking. We have developed this process involving wax resists in order to provide nontoxicprint.com with a simple cost effective way of coating plates. Our process will be shared with the international printmaking community this May.

12:15pm – 1:00pm

2 Paleopathology Present in Late Pleistocene Giant Bison Found in Coastal Georgia

3rd Floor Commons (Health Sciences Building)

Presenters: Scott Raulerson

Faculty Mentor: Alfred Mead

The late Pleistocene Giant Bison, *Bison latifrons*, inhabited the open woodlands of Georgia as recently as 21,000 years ago. For the current study we examine bison fossils excavated from Clark Quarry near Brunswick, Georgia. These fossils are housed in the Georgia College Natural History Collection. A visual analysis of approximately 500 of these remains was completed, and bone abnormalities that would indicate a form of pathology were noted. Many diseases and injuries leave characteristic signs on bones, and as a result, assessment of bone pathology is a useful tool to determine the physical conditions and behaviors of prehistoric mammals. In some instances evidence of similar injuries can be found in the remains of related animals alive today. Relating evidence of diseases and injuries in more recent populations to that found in the prehistoric populations may illuminate the behaviors or stressors which made impacts on the species. Some prevalent pathology found in the Clark Quarry Giant Bison were spinal osteoarthritis, ossification of joints, and bone callus formation around healed fractures.

12:15pm – 1:00pm

2 PCR-Detection of pathogenic Escherichia coli strains carried by Feral Swine in Georgia

Presenters: Lillie Brannen

3rd Floor Commons (Health Sciences Building)

Faculty Mentor: Dave Bachoon

Feral pigs are a growing problem in the United States; these destructive animal threatens livestock, agriculture, property, forests and native wildlife. As the population of feral hogs continue to increase in the Southwestern U.S., feral pigs often encroach on farm lands. These pigs are known to carry a wide range of pathogenic bacteria including Escherichia coli, Brucella Suis, Campylobacter Jejuni, etc. and may be able to spread these pathogens to farm animals and humans. Fecal samples from feral pigs were collected from several counties in Georgia. The DNA from the samples were extracted and PCR was used to detect the virulent strains of E. coli base on the presence of stx and eae genes.

12:15pm – 1:00pm

2 Preconception and Pregnancy Weight Management in Women of Childbearing Age: A Review of the Literature

Presenters: Josie Doss, Holly Kilpatrick, Anna Mullins, Lindsey Tavel, Madeline

3rd Floor Commons (Health Sciences Building)

Walters

Faculty Mentor: Monica Ketchie

Nearly one in two U.S. women of childbearing age are either overweight or obese making weight a critical public health problem. Overweight and obesity has been associated with both short and long-term health risks for both women and their offspring. Research links overweight and obesity to adverse outcomes related to both infertility and pregnancy, as well as risks for diabetes and cardiovascular disease later in life. Therefore, controlling weight gain is a priority for all women. The purpose of this project is to research information women receive in the preconception period related to weight management versus information during pregnancy. Four student researchers conducted a literature review using CINAHL databases to examine peer-reviewed articles published within the past five years. The literature indicates though weight loss during pregnancy is discouraged, counseling about weight loss prior to conception is not emphasized. There is a gap in the conversations between practitioners and women about weight that is not started until after conception. Preconception weight counseling is important to implement in women's care before pregnancy, decreasing pregnancy and long-term risks.

12:15pm – 1:00pm

2 Presuming Competence in ESOL Students

3rd Floor Commons (Health Sciences Building)

Presenters: Ryan Olliffe

Faculty Mentor: Nicole DeClouette

My presentation will cover how to promote a challenging academic environment for students who are not proficient in English. Many teachers mistake a language barrier for a lack of competence. As a result, many ESOL students are misidentified with learning disabilities. Instead of presuming incompetence, teachers must recognize the skills and intelligence possessed by students who speak different languages. Due to cultural and linguistic assessment biases, many students who do not speak English are put at a disadvantage very early in their academic careers. Countless ESOL students are not sufficiently challenged, so they are not getting the full benefit from their education. It is imperative that we start focusing on these students' strengths instead of just their shortcomings. In fact, universities have conducted studies that show that bilingual students have an advantage in reading comprehension. This is due to their ability to draw more connections than a monolingual student. (Nagy et al 1993)Although students who speak different languages may encounter difficulties in the early years of their education, they have great potential to excel. For this reason, teachers must work through the language barrier to find their unique strengths and abilities. Participants will discover methods of instruction and assessment that can greatly benefit English Language Learners.

12:15pm – 1:00pm

2 Progress Towards the Synthesis of A Novel Trifluoromethyl Substituted Aurone As A Promising Inhibitor of Cyclooxygenase-2 Activity

3rd Floor Commons (Health Sciences Building)

Presenters: Samoya Forbes-Pentecost, Macy Polk

Faculty Mentor: Chavonda Mills

Aurones, a subclass of naturally occurring flavonoid compounds, have shown great biological potential. Former studies have shown that aurones exhibit anti-cancer activity as well as a variety of other pharmacological activities, including anti-inflammatory and anti-viral properties. More specifically, these studies indicate that aurones show potential in inhibiting cyclooxygenase-2 activity (COX-2), an enzyme that plays a vital role in inflammation and its associated diseases, such as cancer. Through its production of prostaglandins, COX-2 activity increases the inflammation and pain at a targeted site. Mills, et. al. recently performed molecular docking studies of several novel aurones at the COX-2 active site. As a continuation of this research, a synthetic pathway for one of the most promising aurone derivatives, a novel trifluoromethyl-substituted aurone, has been proposed. The final target molecule will be synthesized using this route and the novel compound will be characterized.

12:15pm – 1:00pm

2 Refinement of Production Grade Biodiesel

3rd Floor Commons (Health Sciences Building)

Presenters: Campbell Axt, Christopher Barrett, Robin Beauchamp, Elizabeth Cronan, Zachary Huffman, Annaleigh Jackson, Sydney Ninneman, Nicholas Stubler

Faculty Mentor: Ken McGill

The modified Burton method for the thermal hydrogen-cracking of peanut oil has been investigated in the McGill

Research Group since 2009. The successful and reliable production of biodiesel has been achieved since 2014. A hydrocarbon with viscosity similar to production grade diesel will work in modern diesel engines. The current product has a viscosity significantly lower than production grade diesel. The starting material has a viscosity significantly higher than production grade diesel. Current research is investigating methodologies to mix starting material and product to achieve target viscosity.

12:15pm – 1:00pm

2 Refocusing Students with ADHD

3rd Floor Commons (Health Sciences Building)

Presenters: Kathryn Gamble, Shelby Prosko

Faculty Mentor: Nicole DeClouette

Refocusing Students with ADHD takes a look into the modern resources available to teachers to help refocus a child with Attention Deficit Hyperactivity Disorder in the classroom. The number of students diagnosed with ADHD increases every year and as the number of diagnosed children increases the need for meaningful intervention does as well. With the implementation of a variety of research-based methods and tools teachers can create a learning environment that helps students with ADHD remain focused and engaged in the educational material. Applicable to not only students with ADHD, this presentation can help any student who struggles to remain on task.

12:15pm – 1:00pm

2 Strategies to Decrease the Risk of Heroin Abuse in Patients Undergoing Opioid Analgesic Therapy

3rd Floor Commons (Health Sciences Building)

Presenters: Madison Stansell

Faculty Mentor: Maria Flordesol Culpa-Bonda

The current heroin epidemic is a major public health problem. Over the past several years, heroin abuse in the United States has been increasing at an alarming rate; consequently, there has also been a sharp increase in the number of deaths from heroin overdoses. Research shows that there is a connection between opioid analgesic therapy and heroin use. People who undergo opioid therapy for chronic pain are at a significantly increased risk for abusing heroin. This project seeks to determine the most effective strategies to prevent heroin use in patients undergoing opioid analgesic therapy by reviewing published literature. Some of the most important interventions that should be implemented to decrease the risk for heroin abuse involve educating patients and physicians on various methods to better monitor and control opioid pain management regimens.

12:15pm – 1:00pm

2 Taphonomic Analysis of Bison latifrons Fossils from Pleistocene Deposits in Brunswick, GA

3rd Floor Commons (Health Sciences Building)

Presenters: Michael Ziegler

Faculty Mentor: Alfred Mead

The long-horned ungulate known as the Pleistocene Giant Bison (*Bison latifrons*) is renowned for being the largest bovid species in the fossil record with continent-wide dispersion during the Sangamonian interglacial period, approximately 128,000 years ago up until 21,000 years ago. Former GCSU students and faculty unearthed Giant Bison as well as numerous other ice-aged specimens in an extensive excavation at Clark Quarry, a Late Pleistocene locality near Brunswick, GA. These in situ fossils were deposited on relict sandy surfaces, now identified as the Princess Anne Terrace, within the Satilla Formation when the planet was experiencing a significant period glacial advance and a corresponding sea level drop of approximately 80 m. Although Clark Quarry produced ample specimens, it failed to produce fossilized evidence of predators/scavengers. The lack of predators/scavengers in Clark Quarry is not unexpected since trophic interactions limit the number of predators in most terrestrial ecosystem. Although, without physical representation of predators/scavengers in the fossil record, our understanding of the Clark Quarry paleo-environment is incomplete. To combat this lack of fossil representation, we utilized a taphonomic analysis of Giant Bison fossil from Clark Quarry to provide evidence of postmortem alteration by predators/scavengers.

12:15pm – 1:00pm

2 The Affects of Lavender and Peppermint Essential Oils

3rd Floor Commons (Health Sciences Building)

Presenters: Sardiya Livingstone

Faculty Mentor: Walter Isaac

There is very little reliable research detailing the effects of essential oils on humans with much of the information coming from nonscientific sources. Two treatments gaining popularity are lavender and peppermint essential oils. Lavender essential oil is supposed to relax people while peppermint essential oil energizes. This experiment hypothesizes that exposure to lavender essential oil will cause subjects to reduce their activity in an open field compared to control condition suggesting a relaxed state and exposure to peppermint essential oil will result in higher activity levels suggesting an energized state. The experiment tested 15 male and 15 female crickets (*Acheta domestica*) in an open field apparatus. Three treatment conditions were evaluated (no essential oil, lavender essential oil, or peppermint essential oil) using a within-subject repeated measure design. Depending upon the treatment schedule, subjects were exposed to no treatment, lavender essential oil or peppermint essential oil for five minutes prior to placing subjects into the apparatus for five minutes where their movements were video recorded so lines-crossed could be accurately counted. Again, it was hypothesized exposure to the peppermint oil would increase the number of lines crossed in the open field compared to controls and the lavender oil treated conditions. It was also hypothesized the lavender oil treatment would decrease the number of lines crossed during testing compared to controls and the peppermint oil treated conditions. Data collection is complete and data analysis is in progress.

Presenters: Rachel Crane

Faculty Mentor: Ronald Fietkau

Kidney stones are considered one of the most common diseases among industrialized countries, effecting one in one hundred individuals per year. Since 80% of kidney stones are composed of insoluble calcium oxalate, individuals prone to kidney stones are advised to avoid foods and beverages that are high in oxalate. One such beverage that is considered high in oxalate is tea(1). In order to determine the amount of oxalate in common tea brands, a titration with potassium permanganate was performed against an acidified sample of unsweetened brewed tea. Using this technique, the average oxalate content in Luzianne's blended black tea in their Family Size, Flow Tea Bags was found to be 141.5 ± 19.1 mg/serving. The average tea bag includes 7.85% (w/w) oxalate. From this technique, more brands and types of tea will be investigated. 1. GASISKA, A.; GAJEWSKA, D. Tea And Coffee as the Main Sources of Oxalate in Diets of Patients with Kidney Oxalate Stones. Roczniki Pastwowego Zakadu Higieny. 2007, 58, 61-67.

Presenters: Katherine Hachat

Faculty Mentor: Catrena Lisse

There are many water sources in the United States which all have different appearances. It is possible that this difference in appearance is due to different levels of eutrophication in the surface water. Eutrophication is the enrichment of an ecosystem with excess compounds containing nutrients such as nitrogen and phosphorus which can lead to the production of potentially toxic cyanobacterial blooms. These blooms can impede lake activities due to the health risks involved with them as well as the smell that excess phosphorous can cause.1 Surface water from Walker Pond located in Brooksville, Maine was analyzed and compared to water from Lake Sinclair in Milledgeville, GA. Analytical detection was performed using HACH surface water testing kits and YSI nutrient probes. The main focus of this project was to determine the difference in the nutrient levels between the two lakes and to monitor the health of each lake according to EPA guidelines. The experimental design and results are summarized in this presentation. 1 Dodds, W.K.; Bouska, W.W.; Eitzmann, J.L.; et. al. Eutrophication of U.S. Freshwaters: Analysis of Potential Economic Damages. Environ. Sci. Technol. 2009 (1), 12-19

Presenters: Stephanie Jones, Mary Charlotte Leicht, Holly Milam, Carley Miles

Faculty Mentor: Emily Simonavice

The purpose of this study was to determine if previous acute lower body injuries had an effect on balance. The sample size included 26 females from the ages of 18-25 (21 ± 1 years). Thirteen of the subjects had sustained a previous acute lower extremity injury and thirteen subjects were uninjured within the past 4 years. Within the injured group, testing variables included: injury type, joint affected, injury severity, and whether or not they completed physical therapy. Participants completed two tests, determining static balance (Stork Standing Test) and determining dynamic balance (Star Excursion Balance Test).

Independent t-Tests were utilized to determine significance between balance scores in the injured and uninjured groups. A significance level of $p \leq 0.05$ was accepted. Participants were expected to balance on each leg determining static balance (SST) and dynamic balance (SEBT).

There was no significant difference in balance assessments between females with an injury (42.15 ± 10.26 seconds) compared to uninjured (45.00 ± 0.00 seconds) in the left SST or in the right SST in females injured (42.38 ± 9.43 seconds) compared to uninjured (45.00 ± 0.00 seconds). No significant difference was found between the left or right SEBT for injured in anteriomedial [(68.97 ± 8.21 cm), (69.92 ± 10.03 cm)], medial [(72.89 ± 9.12 cm), (73.39 ± 9.49 cm)], or posteriomedial [(77.27 ± 12.42 cm), (77.9 ± 10.53)] directions. There was also no significant difference in the SEBT for uninjured athletes.

This study can be used by researchers to determine the long-term effects that physical therapy has on balance and recovery in females with a lower body injury.

Presenters: Victoria Allyn, Kristina Bausum, Boston Chandler, Jessica Wheeler

Faculty Mentor: Kristina Dandy

We assessed the proficiency of Betta fish to locate food reinforcement in a plus maze when cued by varying wavelengths of light. We hypothesized LED color would impact learning speed, and fish habituated to lights before testing would select the illuminated arm faster than fish not habituated. Four female Betta splendens were randomly assigned to different habituation conditions. Half underwent habituation trials with one of four illuminated differently colored LED lights placed at the ends of each arm; half underwent habituation training in the absence of light. Following five days of habituation, subjects were tested daily in the maze, whereby only one LED light was illuminated. Once fish entered the illuminated arm, food was delivered at the end of that arm. Fish were tested on each LED color

until proficient at locating food reinforcement. Proficiency was defined as no more than one error by day three of testing with no changing trends in behavior. Results revealed no main effects of habituation condition, $F(1,15) = .200$, $p = .698$ or LED color, $F(3,15) = .625$, $p = .291$ on days to proficiency. Results imply female Betta fish perceive a wide range of wavelengths; lack of statistical significance may be attributed to fish making few errors during testing regardless of LED color. Because one light was the only cue in the maze, fish may have approached the light due to its salience, not as a cue for food. These findings serve as steps towards better understanding stimuli that control Betta fish behavior.

12:15pm – 1:00pm **2 Towards the Synthesis of Azobenzene Dicarboxylic Acid Derivatives for the Preparation of Novel Microporous Metal Organic Frameworks (MOFs)** 3rd Floor Commons (Health Sciences Building)

Presenters: Suzanne Avant

Faculty Mentor: Peter Rosado Flores

Metal organic frameworks (MOFs) are hybrid organic/inorganic materials, which exhibit microporosity. These microporous properties allow for MOFs to have applications in various fields such as gas storage and drug delivery due to their high surface areas and large pore volumes. The encapsulation of small molecules in metal organic frameworks is of particular interest. This arises as a result of the versatile customizability of their pore size and framework type by employing various reaction conditions in conjunction with ligands of different topologies¹. The goal of the project is to synthesize azobenzene dicarboxylic acid derivatives where the carboxylic acid moieties positions in the benzene rings are varied from: para, ortho, and meta². When coordinated to metal centers, literature has shown that the different topologies of the ligand systems allow for the preparation of frameworks with different structural features³. The MOFs will be synthesized by screening through various synthesis conditions to determine the highest product yields and structural features. MOF synthesis conditions will include varying solvent ratios, temperature, and pH among others.

1. Stock, N.; Biswas, S. *Chem. Rev.* 2011, 112, 933-969.

2. Qiu, M. Y.; Zhang, J. C.; Shi, W. Y.; Jia, Q. C.; Nu, Y. S. *Asian J. Chem.* 2012, 24 (5), 2295-2297.

3. Chen, T.-H.; Popov, I.; Kaveevivitchai, W.; Miljanic, O. S. *Chem. Mater.* 2014, 26, 4322-4325.

12:15pm – 1:00pm **2 Using GIS to analyze the factors influencing roadkills in Baldwin County, GA** 3rd Floor Commons (Health Sciences Building)

Presenters: Megan Corley

Faculty Mentor: Alfred Mead

With increased human population size and expansion of major roads to accommodate this growth, humans are placing more stress on wildlife populations. One example of this stress is habitat fragmentation that forces wildlife to cross roads often resulting in wildlife-vehicle collisions. In a previous study, a survey of vertebrate roadkills was conducted on three different roads in Baldwin County. A total of 178 roadkills were recorded during the one year study period. In this study, we use the geographic coordinates of each roadkill location to determine whether there are any significant correlations between the roadkills and curves, hills, and streams. We will use digital data to obtain the percent slope, distance from the closest stream, and sinuosity for each roadkill location and use these data to perform the statistical analyses. We expect to find from the statistical analyses that the topography and curvature will show a strong correlation with the location of roadkills because these factors, either individually or in combination, may play a role in obstructing motorists view of crossing wildlife. Streams may also be correlated with roadkill locations with more movement of certain wildlife species around these areas.

12:15pm – 1:00pm **2 Using HPLC to Determine a Drug's Ability to Permeate the Blood-Brain-Barrier** 3rd Floor Commons (Health Sciences Building)

Presenters: Paul Espinosa

Faculty Mentor: Chavonda Mills

Alzheimer's disease is expected to affect 7.1 million Americans by the year 2025. The most widely prescribed treatment for Alzheimer's disease are acetylcholinesterase (AChE) inhibitors, which prevent the hydrolysis of acetylcholine into acetate and choline. Since AChE is located in the central nervous system (CNS), inhibitors must cross the blood-brain-barrier (BBB) to exert their inhibitory activity. Molecular properties that affect drug permeability into the BBB include Lipinski's rule of five: molecular weight, lipophilicity, polar surface area, and presence of hydrogen bonding and charge. Unfortunately, there are limited methods capable of testing a compound's ability to permeate the BBB. However, the use of immobilized artificial membrane (IAM) chromatography as an analytical technique for the prediction of drug transmission and of BBB permeation is becoming more prevalent in drug discovery research. High-performance liquid chromatography (HPLC) with a special immobilized artificial membrane column is used in the current method development study to mimic the BBB and to test and validate the permeability of a set of therapeutic standards. With the method authenticated, synthesized novel flavonoid derivatives as AChE inhibitors will be tested for their ability to cross the BBB and their potential to serve as treatment for Alzheimer's disease.

12:15pm – 1:00pm **2 Using Yoga In The Classroom To Improve Mindfulness** 3rd Floor Commons (Health Sciences Building)

Presenters: Jessica Chalout

Faculty Mentor: Nicole DeClouette

We will explain the benefits of using yoga in the classroom to improve the mindfulness of students in special education classrooms. We will provide research on how yoga has improved behavior and self-control and promotes focus in students. We will give examples of ways that yoga can be integrated into the daily classroom routine and explain how yoga is a great way to incorporate movement into classroom learning for all students in both general education and special education. We will provide descriptions of students with specific disabilities and explain how yoga will meet their individual behavioral and emotional needs. We will also provide research results from a local classroom that uses these techniques to improve behavior management of students with emotional behavioral disabilities.

12:15pm – 1:00pm

2 UV-Visible Spectra of Various Colored Inks

3rd Floor Commons (Health Sciences Building)

Presenters: Rachel Pendley

Faculty Mentor: Ronald Fietkau

Humankind's use of ink can be traced back 40,000 years beginning with northern Spanish cave paintings created using ink based on manganese dyes, plant sap, and animal blood. In 1950, the Bic Cristal ballpoint pen was created. Bic has produced a package of Cristal Pens that have a variety of colors. The ink from these writing instruments can be analyzed and classified. In order to do so, the ink must be extracted from the pen and placed in an ethanolic solution. An Ocean Optics ultraviolet-visible (UV-Vis) spectrometer was used to produce absorbance spectra of the various colored inks.

12:15pm – 1:00pm

2 What are the Effects of Music Genre on Perceived Exercise Intensity in an Aerobic Exercise Bout in Female Collegiate Athletes?

3rd Floor Commons (Health Sciences Building)

Presenters: Margaret Barhite, John Gil, Thomas Jones, Rebecca Olson, Cassidy Rice

Faculty Mentor: Emily Simonavice

Music is often utilized as an accessory to exercise in young, active populations. There is a lack of research indicating the impact of different music genres on the perception of exercise intensity in female athletes. PURPOSE: The purpose of the current study is to examine the effects of music genre on 16 collegiate female athletes during an aerobic exercise bout by assessing three variables: rate of perceived exertion (RPE), heart rate (HR), and blood pressure (BP). The hypothesis of the study is that rap music will elicit a lower averaged RPE. METHODS: The protocol included two randomly-assigned experimental treatments (classical and rap music). The aerobic bout was done on an upright cycle ergometer and consisted of a warm-up, a five-stage graded-exercise test, and a cool-down. Every two minutes, resistance increased by 40 watts, RPE and HR were taken, and BP at the 5 and 10-minute markers. RESULTS: A dependent t-test was utilized for statistical analysis. The results indicated no differences in RPE, HR, and BP in classical and rap music. The first statistic is pulled from the classical music trials, then proceeded by rap. RPE (7 ± 1) and (7 ± 1), 2nd RPE (10 ± 1) and (10 ± 2), and the final RPE (13 ± 2) and (13 ± 2). CONCLUSION: The hypothesis was rejected as there was no statistical significance gathered from the results. A larger study with fewer limitations will be needed to render a significant and more reliable outcome.Â

1:15pm – 2:15pm

C A study on the 2016 presidential candidates' advertisements and how the public responds

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Alex Davies, Hope Hutson, Bailey Miller, Will Mulholland

Faculty Mentor: Mary J. Land

As the 2016 primary election political candidates seek to communicate with voters who are concerned about certain issues, advertisements with intended and consistent strategies are becoming more prominent. Much has been written about the strategies politicians used in the past, what information they place in their ads and how the public responds. It was found that the public more often responds negatively to these ads, voicing their opinions stronger for a candidate that the voter does not agree with. The public also responds predictably to stereotypes placed in advertisements. Voters tend to vote for men that focus on aggressive topics and have more masculine features. If they are to vote for women, society would vote for women that focus on softer topics and have more feminine features. This phenomenon has seldom been examined systematically and this study attempts to achieve this. This paper presents an empirical content analysis study which combines two classification methods, what policies and techniques used in 2016 USA primary election and how the public responds. This was achieved by viewing the prospective commercial spots by Republican candidates Donald Trump and Ted Cruz and Democratic candidates Hillary Clinton and Bernie Sanders and gauging viewer opinion through social media comments and posts. This analysis will stay consistent with agenda setting theory by informing the understanding of public opinion and the importance they refer to certain issues presented in candidates advertising campaigns.

1:15pm – 2:15pm

C An Analysis of 2016 Republican Candidate's Tweets and Responses

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Diamond Childs, Keri Davis, Rebecca Mobley, Emma Nortje, Christian Thomas

Faculty Mentor: Kristin English

This research analyzed the sentiment of tweets in response to tweets posted by Republican party candidates Donald

Trump and Ted Cruz and whether those sentiments were positive or negative. Twitter is a medium that is most often used by younger generations to voice their political opinions through response. Sentiment was determined by the wording, diction, and overall meaning of the selected tweets. The research was completed using Twitter by randomly choosing respondents to the most popular tweet of the given day by Trump and Cruz. The tweets were analyzed in content analysis form. It is projected that the response to what the candidates were tweeting will be negative towards Trump and positive towards Cruz. It is suggested that Twitter users are more likely to respond to Trump, however they are also less supportive of Trump and his campaign strategies.

1:15pm – 2:15pm **C How Do 2016 Presidential Candidates' Presence on Twitter Affect Their Campaigns?** HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Katie Flom, Maggie Foster, Kristy Guilbault, Macy Henry

Faculty Mentor: Mary J. Land

Do the 2016 presidential candidates, Bernie Sanders and Donald Trump, use Twitter to demean other candidates or to promote their own platforms? A content analysis was used to study tweets and determine the type of message each candidate is sending and the response it yields from the general public. Tweets were chosen on a weekly basis from candidates and the general public from November 2015 through February 2016. From the general public, tweets were chosen based on the use of hashtags, positive, negative and neutral, about each candidate. By analyzing the Twitter accounts of Bernie Sanders and Donald Trump it was projected that the candidates' most popular tweets promoted their political agenda. It was also projected that the public's opinions of each candidate changed positively or negatively based on the tweets the candidates sent out. These projections are associated with the Media Dependency Theory which can be linked to the presidential campaigns; if a person is seeing only positive media about a candidate, their original opinion can be changed. This theory shows how much of an impact various media outlets can have on the public's everyday thinking and actions.

1:15pm – 2:15pm **C Polarization in the Primaries** HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Madison Jones, Altimease Lowe, Jennifer McGinnis, Ada Montgomery

Faculty Mentor: Mary J. Land

This research studied whether there was existence of polarization in the 2016 presidential candidates Bernie Sanders, Donald Trump, Hillary Clinton, and Ted Cruz during the primary debates. The major focus was to observe if each front runner becomes more polarized as they become closer to the end of the presidential primary campaign. Polarization was observed through a content analysis of the first three debates and the last three debates of the primary campaign season from both the Republican and Democratic Party. The debates were measured by listening to each candidate's stance on the topics of social issues, domestic policy, healthcare issues, economic policy, immigration, education, foreign policy, and environmental issues in each debate and classifying the stance as extremely liberal, liberal, moderately liberal, neutral, moderately conservative, conservative, and extremely conservative. It was proposed that each candidate will become more polarized in their message during the debate as they become closer to the conclusion of the primary election campaign in effort to secure their nomination into the general election.

1:15pm – 2:15pm **M Do Private Prisons Affect Recidivism?** HSB 201 (Health Sciences Building)

Moderators: John Swinton

Presenters: Alexander Long

Faculty Mentor: J.J. Arias

Using data collected from the U.S. Department of Corrections from each individual state, along with the Census, this project examines the different rates of recidivism between private prisons and public prisons through the use of OLS regression. The regression uses recidivism as the independent variable and multiple dependent variables to find that private prisons have little to no effect on recidivism rates. Given that private incarceration is a high value industry, it is important that we know that they have no real effect on state recidivism.

1:15pm – 2:15pm **N Early College** HSB 202 (Health Sciences Building)

Moderators: Amy Pinney

Presenters: Early College Students

Faculty Mentor: History

Entire panel devoted to these students.

1:15pm – 2:15pm **H Does Comprehensive Sex Education Affect Sexual Health?** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Morgan Scarboro

This paper estimates the effect of different sexual education curricula on sexual health in young adults aged 15-24 years old. In this application, sexual health is defined as the rate of STDs, abortions, and teen pregnancies. Using fixed effects to control for unobservable heterogeneity between states, I use state-level data to examine the role that

comprehensive sex education programs play in the sexual health of young adults. I find no evidence that comprehensive sexual education at the school level plays a significant role in decreasing the likelihood of abortion, pregnancy, or STDs.

1:15pm – 2:15pm **H Does Living in a Food Desert Have an Effect on Obesity Rates?** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Marisa Boyette

The USDA conducted extensive research on US food access and found that 23.5 million US citizens currently live in food deserts, which are defined as low-income areas with low access to affordable, healthy food. Utilizing county-level obesity rates from the CDC and the USDA's definition of food deserts, I estimate the effect living in a food desert has on obesity rates. Previous work has found effects of race and income on obesity rates and on living in food deserts, but the causal link remains unclear. I find no causal effects, suggesting the policies surrounding food deserts may be ineffective in reducing obesity.

1:15pm – 2:15pm **H Does Medicaid Affect the Unmarried Birth Rate in the United States?** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Megan Rose

This paper uses state level panel data on Medicaid funded births and the unmarried birth rate in the United States. Medicaid is intended to help fund medical care to the poor, which is the income group that single mothers typically belong. State level fixed effects are used to control for unobserved heterogeneity since each state has time invariant differences. The results show that Medicaid has a statistically significant effect on the unmarried birth rate.

1:15pm – 2:15pm **H Does Uber Affect Vehicular Fatalities** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Austin Mctier

In this paper I analyze the impact of Uber on vehicular fatalities within a given city. Using national city-level panel data from 2009 through 2014, I estimate a difference-in-difference technique accounting for differences across cities and over time. City-level fixed effects are also utilized to account for unobservable heterogeneity at the city level. I expect to find that the presence of Uber decreases a city's total number of vehicular fatalities. This finding may serve to counteract some of the considerable political pressure in some cities to limit Uber's market participation.

1:15pm – 2:15pm **3 Analysis of urine organic acids via GC/MS-based Metabolomics to determine the effect of diet on urine composition** HSB 207 (Health Sciences Building)

Presenters: Jessica Minnick

Faculty Mentor: Catrena Lisse

How does diet influence our health? As it is well-known, a college student's diet is notorious for being unbalanced. Researchers are contemplating the relationship of diet and health through the use of GC/MS-based metabolomics which is commonly used to diagnose metabolic disorders. Gas chromatography/mass spectrometry (GC/MS) is utilized to study the composition of urine due to its high sensitivity towards multiple factors that affect the urine's composition- i.e. diet, age and gender.¹ The multi-step undergraduate research project (1) focuses on how the organic acid profile of urine changes based on diet via the use of GC/MS coupled with a purge-n-trap autosampler, (2) determines the significance of the suspected alterations, and (3) correlates findings with the diagnosis of common metabolic disorders. This presentation summarizes the method development and preliminary results.

1:15pm – 2:15pm **3 Determination of Fluoride in Toothpaste** HSB 207 (Health Sciences Building)

Presenters: Karlton Green

Faculty Mentor: Ronald Fietkau

Fluoride is a very important mineral for a person's health in preventing tooth decay. Over 95% of toothpastes sold in the U.S. contain fluoride. Most of which, have between 1,100 ppm and 1450 ppm. Ingesting too much fluoride can lead to dental fluorosis, which defects and weakens tooth enamel. The risk for dental fluorosis is much higher in children when teeth are developing. Ion chromatography was used to analyze the fluoride concentration in different toothpaste samples. The analysis of the different samples coincide with the values reported on the manufacturers label.

1:15pm – 2:15pm **3 Survival of Biological Contaminants in Tributaries of an Intertidal Oakdale Creek** HSB 207 (Health Sciences Building)

Presenters: Anthony Scott Maddox

Faculty Mentor: Andrei Barkovskii

The southeastern coastal regions have been recognized as being among the fastest growing areas in population in the United States; increase in population leads to increased agricultural land usage, increased waste-water output, as well as municipal runoff. This has led to a growing consideration in the consequences of biological contaminants and antibiotic resistance in our local marine and coastal environments, and the value of coastal marshes. In previous studies, we have analyzed the distribution and environmental routes of antibiotic resistant genes and their associated pathogenic bacteria. In this study, we investigate the survival of these pathogenic bacteria and the distribution of their

genes that attribute to their virulence and antibiotic resistance in Georgia estuarine environments. Samples were periodically collected at three field sites along Oakdale Creek on Sapelo Island, GA, periodically, using constructed suspension chambers containing water samples. Water quality parameters were analyzed and correlated with the occurrence of bacterial genes. Tetracycline resistant genes (TRG) and pathogenic bacteria profiles were quantified using qPCR. The pathogenic bacteria and TRG exhibited a decrease in overall copy numbers with each sequential sampling event, suggesting a decrease in pathogenic bacteria and their associated genes due to exposure to the estuarine environment. Metagenomic analysis revealed a shift in the bacterial communities' composition that could explain the possible filtering effects of our coastal saltmarshes.

1:15pm – 2:15pm

3 Using HPLC to Further Analyze Caffeine Content of Blackbird Coffee

HSB 207 (Health Sciences Building)

Presenters: Tracie Self

Faculty Mentor: Kimberly Cossey

Have you ever wondered how much caffeine is in your daily cup of coffee? Consumers with this question sparked interest in analyzing the caffeine content of locally roasted and brewed Blackbird coffee. Previous work within our research group has developed a method to determine the caffeine content of coffee through liquid-liquid extractions followed by analysis with ¹H-NMR spectroscopy. While this method has proved reproducible, the presence of impurities would affect the accuracy of caffeine masses. In this work, a method to measure the caffeine content in coffee using the HPLC will be developed. According to literature, coffee can be directly injected into the HPLC; however, this results in a complex mixture that requires large amounts of costly solvents. Therefore, we will first extract the caffeine before injecting into the HPLC and we will use a standard to determine the exact amount. Once a reliable HPLC method is developed, the extracted caffeine data will be compared to the HPLC data to determine the most accurate caffeine content. This data will then be reported to Blackbird coffee and their customers.

1:15pm – 2:15pm

J Ethnic Studies in American Higher Education: Tackling Issues of Inclusion

HSB 304 (Health Sciences Building)

Moderators: Amy Sumpter

Presenters: Narrae James

Faculty Mentor: Beauty Bragg

As far as academic disciplines go, Ethnic Studies is a fairly new invention. With the changing social currents of the mid-20th century, the need for a more inclusive and representative curriculum in higher education was brought to the forefront by a culmination of both grassroots and nation-wide civil rights and social justice movements. From the Third World Liberation Front and the creation of the first Ethnic Studies Department to today, Ethnic Studies has grown significantly. This discipline is a young one, however, and there is still plenty of growing to be done. This research presentation thus aims to give a concise history of the emergence of Ethnic Studies as a viable discipline, and the context of that emergence. Attention will then be shifted to the state of the discipline today – its main areas of focus, its reception amongst academics and students, the challenges that it continues to face to this day

1:15pm – 2:15pm

J Faith Ringgold's Tar Beach 2 and Spiritual Pragmatism to Transcend Social Injustice

HSB 304 (Health Sciences Building)

Moderators: Amy Sumpter

Presenters: Tumaini Afful

Faculty Mentor: Elissa Auerbach

Faith Ringgold's 1990 story quilt, *Tar Beach 2*, is a commentary on the African American family facing inequality, racism and segregation in 1939 Harlem. Ringgold's fictional heroine Cassie Louise Lightfoot is featured in several of Ringgold's children's books she began publishing in 1990. The books were inspired by her *Woman on a Bridge* series of twenty-four story quilts released in 1988. Cassie is a tenacious young girl who dreams of a life free of the daily worries caused by social problems. In the narrative Cassie tells her younger brother BeBe that their dreams can be realized through flight, "anyone can fly, all you need is somewhere to go that you can't get to any other way." Scholars have argued that Ringgold uses magic realism in her story quilt utilizing realistic narrative combined with surreal elements as metaphors for freedom. In my paper I will examine the dissimilarities between magic realism and spiritual pragmatism which is grounded in the application of a faith-based belief system. I will also explore how artist producing work towards the end of the Harlem Renaissance in the late 1930s addressed themes of African American spiritualism in response to coping with social problems.

1:15pm – 2:15pm

J The Danger in Dichotomies: Salvaging Discourse In and About Joseph Conrad's Heart of Darkness

HSB 304 (Health Sciences Building)

Moderators: Amy Sumpter

Presenters: Samantha Strickland

Faculty Mentor: John Sirmans

This paper explores the thematic discourse that occur within Joseph Conrad's most controversial novel, *The Heart of Darkness*, as well as the critical reception it has received since its publication. Where the novel concerns itself with human morality and the capacity for good and evil, the novel has been praised as one of the most enlightening and introspective novels ever written. As a novel that also concerns itself with colonialism, imperialism and the racial tensions of the era, it has been heavily and admittedly well-rebuked; however, the supposed defects of its argument should not detract from the importance of the discourse it raises, and even the proposed truths about human nature should not be taken without analysis. *The Heart of Darkness*, like any novel, is simply a vehicle for discourse and

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- 1:15pm – 2:15pm **3 Does AimPoint have an Effect on Earnings on the PGA Tour?** HSB 144 (Health Sciences Building)
- Moderators: Chris Clark*
- Presenters: Guillermo Falkinhoffgips*
- Faculty Mentor: J.J. Arias*
- This paper focuses on the effect of the new putting technique, called Aim Point, on players' earnings on the PGA TOUR. The paper uses individual level data collected from the PGA TOUR on professional golf players' earnings and putting statistics from 2006 to 2015. Using panel data techniques, I find that there is no robust evidence to claim that AimPoint has an effect on players earnings.
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- 1:15pm – 2:15pm **3 Does college basketball experience affect NBA performance?** HSB 144 (Health Sciences Building)
- Moderators: Chris Clark*
- Presenters: Logan Creekmur*
- Faculty Mentor: J.J. Arias*
- I explore whether or not college basketball experience affects performance in the National Basketball Association. I use cross sectional data from 2009-2010 covering ESPN's top 100 basketball players. I run two regressions measuring the likelihood of making it to the NBA followed by a regression measuring results on Performance in the NBA. I find that additional years spent playing college basketball result in better performance during the first NBA season.
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- 1:15pm – 2:15pm **3 Does Money Affect Win Percentage in English Football?** HSB 144 (Health Sciences Building)
- Moderators: Chris Clark*
- Presenters: Charles Horton*
- Faculty Mentor: J.J. Arias*
- This paper reviews data in an attempt to find a causal relationship between money spent on players, in the form of transfer fees, and a team's win percentage. This paper uses panel data from transmarkt, a German run website that has been compiling transfer data for over fifteen years. I have added variables to control for player ability, in the form of international experience, and team fixed effects to control for teams that have an advantage on the field before games are even played. I find that money is positively correlated with win percentage, but the correlation is not as high as in previous research.
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- 1:15pm – 2:15pm **3 Does signing a free-agent contract affect player performance in Major League Baseball?** HSB 144 (Health Sciences Building)
- Moderators: Chris Clark*
- Presenters: William Smallwood*
- Faculty Mentor: J.J. Arias*
- I present an analysis of whether or not signing a contract affects player performance in Major League Baseball. Past studies have revealed inconsistent results on this particular issue due to the rudimentary econometric techniques used. This empirical study produces robust results that control for both batters and pitchers, and measures player performance across ten different performance measures. I utilize individual-level panel data that incorporates 4,100 player observations from the 2001 to 2015 seasons. Using year, player, and team fixed effects, I find consistent evidence that player performance declines after signing a contract.
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- 1:15pm – 2:15pm **B Friends, Romans, and Englishmen in Oxford: Studies in Imperial Roman Art and the English Reformation** HSB 211 (Health Sciences Building)
- Moderators: Amy Pinney*
- Presenters: Anna Democko*
- Faculty Mentor: Elissa Auerbach*
- In September 2015, I traveled to Regent's Park College, a Permanent Private Hall of Oxford University as the first student to participate in the new Georgia College and State University partnership with Oxford. I explored a beautifully timeless city, wrote essays on Imperial Roman Art and the English Reformation, and learned about English culture and critically examined my own through my experience.
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- 1:15pm – 2:15pm **B How Does Johannes Vermeer Portray the Perfect City of Delft?** HSB 211 (Health Sciences Building)
- Moderators: Amy Pinney*
- Presenters: James Galvin*
- Faculty Mentor: Elissa Auerbach*
- One of the most well-known Dutch artists from the Netherlands in the Golden Age of the seventeenth century was Johannes Vermeer from the city of Delft. Vermeer's experimentation with the camera obscura allowed for a greater degree of accuracy in his representations of landscapes, human figures, and the freedom to make calculated adjustments to his scenes for a heightened illusion of perfection. In his painting, View of Delft, he likely utilized the camera obscura to create an ideal scene of his city. He achieves a sense of perfection by subtly shifting certain

architectural landmarks to form an aesthetically pleasing composition. While conducting research on this painting firsthand at the Mauritshuis Museum in The Hague, during a study abroad program in the Netherlands, I observed that the work has much brighter colors than seen in a book during my research. Vermeer helped the viewer seem as though they were inside, experiencing the world of the painting with the shadows from the clouds on Delft and adding sand to the painting to give texture and detail. Vermeer's ideal cityscape reveals not only a fascination with Dutch achievements in science and technology, but also the tremendous economic wealth and political power of the United Provinces. In this paper I will examine Vermeer's experimentation with the camera obscura in View of Delft and his painting techniques to help the viewer feel as though they are inside, experiencing the world of this painting.

1:15pm – 2:15pm

B The Architectural Design of Amsterdam's Seventeenth-Century Town Hall

HSB 211 (Health Sciences Building)

Moderators: Amy Pinney

Presenters: Sarah Strickland

Faculty Mentor: Elissa Auerbach

Amsterdam's former town hall, completed in 1655, is a monumental work of architecture that signifies the immense political and economic success of the Dutch Republic in the Golden Age. At the conclusion of the Eighty Years' War in 1648 with Philip II of Spain—a conflict sparked by the Calvinist regime of the Northern Netherlands against the Catholic Spanish occupiers—the Dutch gained their independence. Political and religious freedom enabled the Republic's economy to flourish with profits from global trade operated by the Dutch East India Company. The town hall was located in the central hub of the city where ships weighed exports and people bought and sold goods in marketplaces. People from all across the globe met in the town hall's public square to conduct business in the Netherlands' metropolis. During the seventeenth century, the town hall was the largest administrative building in Europe and was considered by the Dutch as the "Eighth Wonder of the World." The architect, Jacob van Campen, and sculptor, Artus Quellijn, designed a new, large rectangular structure since the old Gothic-styled town hall was too small and unable to meet city needs. The building has a classical architectural design inspired by works from Greco-Roman antiquity, including pilasters, arches, and a sculptural program of allegorical figures and virtuous bronze statues. In this paper I will argue that the statement of Amsterdam's economic power is manifest in the town hall's design and decoration. This study draws upon an examination of the allegorical sculptural program in the pediment and sculptures along the roofline, the building's classicizing architectural plan, and my first hand observations of the former town hall while studying abroad in the Netherlands last summer.

1:15pm – 2:15pm

B William the Silent

HSB 211 (Health Sciences Building)

Moderators: Amy Pinney

Presenters: Mackenzie Truitt

Faculty Mentor: Elissa Auerbach

William the Silent, a historical leader, is buried in a sculptural tomb created by Hendrick de Keyser in the city of Delft. William was a political leader in the Northern Netherlands during the persecution of Calvinists by Phillip II of Spain, advocating for religious tolerance between all people for political peace. His leadership and lasting political significance in the country earned him the title "Father of the Fatherland." His tomb inside the New Church in Delft, where he lived and was assassinated, shows his highly regarded position concerning Dutch religion based on the tomb's location and physical attributes. Construction began in 1614 and was completed seven years later. His image and tomb are painted frequently in Dutch art of the seventeenth century furthering the theme of memento mori, reminder of death, in Dutch Golden Age art. While scholars have paid considerable attention to William and his political achievements, they have spent less time examining the significance of his tomb monument. With no other monumental examples of respect towards a politician, William the Silent's tomb stands out. I will argue in this presentation that his tomb further demonstrates his achievements in life. Based on online research, books and my first hand observations while studying abroad in the Netherlands, William the Silent has had a lasting impression on Dutch history.

2:30pm – 3:30pm

V 'History Has Him in Her Clutches': The Effect of Exile on the Literature of Emile Zola and Victor Hugo

HSB 211 (Health Sciences Building)

Moderators: Steven Jones

Presenters: Teddi Strassburger

Faculty Mentor: Hedwig Fraunhofer

I will examine the effects of exile on Emile Zola and Victor Hugo through an analysis of the works that they wrote before, during, and after their exiles. I will analyze L'Attaque du moulin and Les Quatre évangiles by Zola and Le Petitesses du maître by Hugo. In these texts, these writers discuss their opinions on Napoleon III and the effect of the coup d'état and the Franco-Prussian War on the citizens of France and on the history of France as a whole. These prose works consider how the coup d'état and the war changed the living conditions in France, as well as the living conditions of the writers themselves.

In L'Attaque du moulin, Zola presents his ideas against the war through a story about love and quotidian life during the war. As part of Les Quatre évangiles, Zola wrote Fécondité during the beginning of his exile; after his exile, he wrote Vérité, in which he adapted the Dreyfus Affair. In La Petitesses du maître, part of Napoleon le Petit, Hugo discusses his opinions on Napoleon III and the effects of his coup d'état.

Contrary to Zola, Hugo is overtly political; he does not hide his political beliefs in love stories. In my paper, I will examine how Zola and Hugo show their political beliefs through their works, as well as how their experiences of exile are presented in their works. I am interested in how the state of exile influenced these writers.

2:30pm – 3:30pm

V Flaubert and Romantic Realism

HSB 211 (Health Sciences Building)

Moderators: Steven Jones

Presenters: Ellis Sykes

Faculty Mentor: Hedwig Fraunhofer

Gustave Flaubert's *Madame de Bovary* (1856) represents a criticism of early nineteenth century, romantic literature. Generally considered one of the great realist novelists of the mid-century, Flaubert aims to mock the romantic movement through satire. Although it is now seen as his greatest work, upon publication *Madame de Bovary* was regarded as a vulgar work of obscenity. Shocked by Flaubert's introduction of his now famous indirect *libre*, which gives realist, transparent access to the characters' thoughts without breaking the narrative thread, the contemporary public saw the text as lacking "conscience" or "morality." Almost twenty years later, when Flaubert published *Un Coeur simple* (*A Simple Heart*), this shorter narrative was not met with the same criticism. Flaubert, again, was contradicting romanticism through an overtly realistic approach, in description, character, and plot development. At the same time, however, this paper questions to which extent *A Simple Heart* is actually a realist text. I argue that this short tale also contains elements of romanticism, the tradition that Flaubert staunchly opposed. Is *Un Coeur simple*, then, a critique of romanticism or is it in fact almost a romantic work? Can the public's greater acceptance of this later text be explained by the more traditional character of the text? My analysis examines the characteristic traits of the romantic and the realist movements and applies them to Flaubert's story. The paper ultimately poses the question whether a work of realism can be completely void of romantic elements or whether the two are inherently linked.

2:30pm – 3:30pm

V Stendhal and Baudelaire

HSB 211 (Health Sciences Building)

Moderators: Steven Jones

Presenters: David Arnold

Faculty Mentor: Hedwig Fraunhofer

Baudelaire and Stendhal are two nineteenth French writers arguably indebted to Romanticism. But their work also goes beyond Romanticism. Romantic poetry is marked by feelings, imagination, madness, chronic melancholy, and incurable boredom (*ennui*). Stendhal and Baudelaire, however, were not only interested in human psychology or the human condition. In opposition to Romanticism, their work also engages in the critique of society. Both writers were born in Paris, during troubled political times. In his most famous novel, *Le Rouge et le Noir* (1830), Stendhal writes about the Restoration of the monarchy (1815-1830). Baudelaire was disillusioned by "the bourgeois King," Louis Philippe, who ascended the throne in 1830, and Baudelaire soon thereafter turned away from politics. In 1857, Louis-Napoleon Bonaparte staged his *coup-d'état*, which Baudelaire criticized in his diaries. Baudelaire published the milestone of modern poetry, *Les Fleurs du mal*, the same year. In addition, both Stendhal and Baudelaire were also esteemed art critics.

What is the relationship between the works of these two important writers? Did Stendhal, as the earlier writer, inspire Baudelaire, and if so, how? My paper goes beyond the biographical similarities between these two writers by focusing on the commonalities and differences in Stendhal's and Baudelaire's work, in particular exploring their ideas about love, the role of the poet in society, and social justice.

2:30pm – 3:30pm

V Surrealism: The Art of the Unconscious

HSB 211 (Health Sciences Building)

Moderators: Steven Jones

Presenters: Krista Whatley

Faculty Mentor: Hedwig Fraunhofer

Surrealism is known and studied today for its use of symbolism and the juxtaposition of the conscious and unconscious realms of life. Growing from a discontentment with modern society after World War I, the seemingly nonsensical imagery of surrealist art and literature demonstrates the spreading belief that previously upheld traditions had become meaningless. As a result, these writers and artists turned to dreams as a new way of understanding the world in which they lived.

The most important influence in the surrealist understanding of dreams came from the work of psychoanalyst Sigmund Freud and his belief that there is another layer to a person's thoughts and feelings that is hidden in the subconscious mind. The goal of surrealist art is to uncover this subconscious layer. With this goal in mind, artists and writers would analyze their dreams and undergo hypnosis in the hope that it would lead to a new understanding.

Although the artists and writers of the surrealist era shared this basic philosophy, their art varies in the way that their ideas are expressed. While some painters maintained a realistic technique to represent their dreams, others started to abandon representationalism in favor of more abstract imagery. Painters such as Max Ernst in turn influenced surrealist writers, who also relied heavily on the use of symbolism and supposedly nonsensical juxtapositions in their

writings. My paper specifically explores the varied work of the well-known French surrealist writer André Breton, who is generally considered the theorist and leader of this movement.

2:30pm – 3:30pm

V Theatrical Themes: Jean-Antoine Watteau's Pierrot in Rococo France

HSB 211 (Health Sciences Building)

Moderators: Steven Jones

Presenters: Elyse Hoganson

Faculty Mentor: Elissa Auerbach

In the early eighteenth century, the Italian theatre genre, Commedia dell'Arte, gained popularity in major cities across Europe, especially in Paris, where theatre thrived as one of the most frequent pastimes in society. The plays of Commedia dell'Arte include stock characters representative of fundamental human personalities and relationships exhibited in various scenarios. During this time in Rococo France, Jean-Antoine Watteau completed his oil painting titled Pierrot, also known as Gilles. Pierrot, the central figure in Watteau's work, is a typical character in Commedia dell'Arte who often represents naiveté and the downtrodden. The figures are rendered within a landscape reminiscent of a wood in Flanders, an idyllic setting which could be seen circulating the art market, and was a popular topic of discussion amongst the French aristocracy. Watteau's depiction of a Flemish landscape is not noteworthy in itself, but becomes significant when paired with figures from the theatre. This paper will explore how the themes of Commedia dell'Arte are rooted in Watteau's Pierrot, and how the correlation between character and setting call attention to the political and social concerns of the art and theatre community in France in the years leading up the Revolution. These issues will be explored through the analysis of paintings of theatrical characters and landscapes, the plays of Commedia dell'Arte, and the opinions on theatre in this era. The rendition of the archetypal character, Pierrot, in this image signifies the influence that theatrical themes had on the European community, and reflects the interest on core human traits and values. Furthermore, I will discuss how the significance of this work is strengthened by the placement of the figures in nature, away from the stage, a setting that evokes consideration of human behavior and values.

2:30pm – 3:30pm

W Art History Exposed Through 3D Sculpture

HSB 300 (Health Sciences Building)

Moderators: Carlos Herrera

Presenters: Erin Light

Faculty Mentor: TeaYoun Kim-Kassor

For my project I will be presenting three original artworks from my 3-Dimensional design class. I will be describing my process for each of the artworks in chronological order, and tying in art history through analysis. For example, I will discuss the importance and significance of color in art from the ancient Near Eastern, Babylonian and Grecian periods. I will be talking about how I went from my ideas, to sketching, to maquette, and finally to the project itself. The struggles with each project will also be described and topics of unification will be presented. I will be taking the knowledge from my art history class and describe how to discover themes and purpose behind works of art. For example, I will talk about the Venus Pudica pose and how it draws more attention to the naked figure itself. This pose, along with other things, will be used as a basis of comparison to what draws eyes to certain areas of my projects. I will mention the method of suggesting movement in relation to the Chauvet Cave paintings from the period of Prehistoric Europe. I will present my 3D paper project, my 3D recycled sculpture project, and my 3D sculpture made through the technique of basket weaving. These projects are a kraken coming out of a storybook, a conjoined sun and moon, and a koi fish respectively.

2:30pm – 3:30pm

W Chromatic Reverb by Susanna Starr

HSB 300 (Health Sciences Building)

Moderators: Carlos Herrera

Presenters: Amanda Lundy

In the process of researching artists for my capstone, I came across Susanna Starr. I first learned about Starr from her display of Mylar cutouts works being shown at the Marcia Wood Gallery in Atlanta. She currently resides in New York. Starr has had multiple solo exhibitions, the most recent being Hyperglow, at the Marcia Wood Gallery that took place November 20- December 23, 2015. For her exhibition, Chromatic Reverb at Ennis Gallery at Georgia College on October 1-23, 2015 Starr showed her hand cut wall sculptures crafted from Mylar sheets. There were a total of eleven works on display, each varying in size and color. Upon Starr's arrival to Georgia College, I researched the Pattern and Decoration art movement that took place in the United States from the mid 1970s to the early 1980's. During my research, I noted that Starr's work was very similar to Miriam Schapiro's, whom had a heavy influence on the P&D movement. Schapiro worked with vivid colors and heavy patterning much like Starr. I will be giving a presentation on Susanna Starr's art sculptures at Georgia College this past October and give a brief synopsis of her inspirations, and her detailed process. I will also give a brief summary of the Pattern and Decoration Movement.

2:30pm – 3:30pm

W Science and Fantasy in Veneziano's The Witch's Procession

HSB 300 (Health Sciences Building)

Moderators: Carlos Herrera

Presenters: Carrie Cooper

Faculty Mentor: Elissa Auerbach

The Italian Renaissance was a time of great innovation for the arts, sciences, and education where scholars studied

human anatomy, classical art and literature. The printing press, one of the scholastic innovations of the time, allowed for the mass production and relatively rapid circulation of literary and artistic works. Witch folklore spread quickly following the dispersion of the book *Malleus Maleficarum* (The Witch's Hammer), a guide to witch hunting, and spurred a fascination with magic and witchcraft, a growing problem for the Catholic Church. The Church sponsored artists to create propaganda for the Inquisition, a movement constructed in part to expel demons and witches through the use of witch trials, burnings, and hunts. Agostino Veneziano, an Italian printmaker from Florence, was studying at the printmaking workshop of Marcantonio Raimondi where he was influenced by Albrecht Dürer and society's preoccupation with witchcraft. In 1520 he produced *The Witch's Procession*, an engraving of a parade of men and witches beating their way through a marshy landscape while they carry small children and the skeletons of large, outlandish creatures. An old, haggard witch sits atop the large skeletal figure in the center of the chaotic scene. She holds a cauldron and her long hair whips behind her in a forceful wind. Veneziano produced a work that does not function as propaganda for the Inquisition, but rather juxtaposes the logic of the natural sciences in the sixteenth century with the fantastical subject of witches. *The Witch's Procession* creates a parallel to the dissension between scientific innovation and the doctrine of the Catholic Church.

2:30pm – 3:30pm

W Tradition and Innovation Reconciled in Pygmalion and Galatea

HSB 300 (Health Sciences Building)

Moderators: Carlos Herrera

Presenters: Anna Democko

Faculty Mentor: Elissa Auerbach

A cursory glance at Jean-Léon Gérôme's painting *Pygmalion and Galatea*, ca. 1890, reveals nothing beyond a traditional French Academic painting, while investigation into the artist's process of creating the shows something far more complex. Gérôme did create a work conventional of Academic art, with a mythological subject and linear style, but deviated from tradition with his use of the camera, a new technology, to make photographs of his models as references for the painting. Yet Gérôme's appointments to conservative artistic academies, such as Institut de France, coupled with a body of work that adhered to the French Academic preference for history narratives rendered with lush colors and linear brushwork indicates an alignment with French Academic values. A high level of skepticism towards artistic innovation, including the newly invented medium of photography, penetrated the French Royal Academy. Gérôme's choice seems inconsistent with his support of Academicism. Where does this traditional yet atypically created painting fit in a world of increasing tension between modernity and tradition? Modern artists such as Paul Gauguin and the other Post-Impressionists flatly rejected Academic rules about what art should look like and how it should be made, while Academicians grappled with if modernity could coexist with art. In using photography to create a work typical of French Academicism, Gérôme offers a possible solution. A comparison of *Pygmalion and Galatea* with French Academic paintings from the eighteenth and nineteenth centuries and modern art movements, such as Impressionism, suggests that Gérôme's use of photography represents neither a rejection nor wholesale embrace of modernity, but one way to reconcile the tension in modernism between artistic tradition and innovation.

2:30pm – 3:45pm

U Emotional Appeal Types in Nonprofit Advertising

HSB 304 (Health Sciences Building)

Moderators: Julia Metzker

Presenters: Suzanne Keim

Faculty Mentor: Jennifer Green

This study examines the effectiveness of emotional appeal types in visual nonprofit advertising. The goal is to distinguish which emotional appeal type, positive or negative, has a greater influence on attitudes toward, and willingness to engage with, the brand. There has been extensive research on the effectiveness of emotional advertising in comparison to rational advertising. However, when it comes to the impact of discrete emotional appeal types, there was a significant gap.

This research uses pet adoption as a platform to study positive and negative appeal types. Participants will view a video on pet adoption that either contains a positive or negative appeal, and will then respond to items assessing their attitudes toward pet adoption, the video, and other relevant measures. A subset of participants will wear eye tracking glasses to investigate which visual aspects of the emotional appeals garner the most attention.

Data is currently being collected and will be analyzed in time to present at the conference. Results are expected to show which emotional appeal type yielded more positive attitudinal responses and which visual elements of the messages were given the most visual attention for processing.

2:30pm – 3:45pm

U Mapping the City of Eatonton Water System and Creating a GIS Databases for the Waterlines and Hydrants

HSB 304 (Health Sciences Building)

Moderators: Julia Metzker

Presenters: Megan Corley, Jenna Forte

Faculty Mentor: Samuel Mutiti

The city of Eatonton in Putnam County, Georgia has been investigating potential water loss due to leaking pipes or fire hydrants. The first step in solving this problem was to map the entire water system of Eatonton including water lines, valves, and fire hydrants. A full map of water lines from 1997 and corrections to those lines in 2014 were acquired from the Eatonton City Administrator and the Putnam County Water and Sewer Authority. An updated list of

fire hydrant locations was acquired from the Eatonton City Fire Department. The water lines, valves, and fire hydrants were mapped using ArcGIS software. Discrepancies were found in areas around the city where fire hydrants were present but there was no record of water lines. A new layer was created showing where water lines should be located based on the location of known fire hydrants. All maps created were digitized and made available to the city of Eatonton as well as converted to a file type viewable using Google Earth.

2:30pm – 3:45pm

U Trash: The Impact of Service Learning on Outdoor Education Students' Professional Philosophy

HSB 304 (Health Sciences Building)

Moderators: Julia Metzker

Presenters: Mark Medlin, Jessica Sparks

Faculty Mentor: Jude Hirsch

Humans ceaselessly discard overwhelming amounts of trash, the discarded, abandoned items no longer considered of value or utility. Volunteer trash cleanups provide a service to the community and affect volunteers' attitudes toward trash and protecting the environment. Such efforts differ, however, from a service learning experience (SLE) purposefully connected to academic curriculum. This phenomenological qualitative study examines the effects of pre- and post-SLE course components and a connected SLE on the professional philosophy of undergraduate outdoor education students.

As higher education trends toward experiential education's philosophy and pedagogical techniques, greater emphasis is placed on problem-based, learner-centered pedagogy, developing students' critical thinking skills, and the value of reflection to student learning. A related trend emphasizes sustainability and the critical relationship between humans and the environment. This study suggests a model for curriculum corresponding with these trends while increasing understanding of curriculum effectiveness. Implications for course design may benefit current and future educators, and, in the broadest sense, the future of earth and its inhabitants.

2:30pm – 3:45pm

U When In Milly

HSB 304 (Health Sciences Building)

Moderators: Julia Metzker

Presenters: Emily Davis, Will Dodgen, Alexis Haggerty, Zahi Ikhwan, Alexander Johnstone, Taylor Lancaster, Katie Lipsiner, Sara Loaiza, Isaac McAninch, Haley Myers, Kit Souther, Kaleb Tillman, Ryan Tracy, Emily Ward

Faculty Mentor: Angela Criscoe

"When In Milly" is a webseries that features the matchless and unique people, places and passions found in Milledgeville, Ga. In an effort to bridge the gap between Georgia College and the community, Haley Myers, producer of "When In Milly", created this webseries last November as a journalism project. It has now been taken on by the Producing For Digital Media Mass Communication capstone classes. The time, effort and collaboration between members of the community and college students in order to create this webseries has allowed When In Milly to acquire over one thousand hits and three hundred followers in just two weeks. Currently, 2 episodes have been released, but there will be about 10 total. "When In Milly" has captured the community's attention as well as their hearts as it continues to send the proactive message of how important it is to value community within the city of Milledgeville.

You can find our webseries on our youtube channel:

https://www.youtube.com/channel/UCaqATXu2k_LfpGUiUTWHUQ

You can also follow along with us on facebook: <https://www.facebook.com/wheninmilly/?fref=ts>

Or find us on Twitter: <https://twitter.com/wheninmilly>

2:30pm – 3:45pm

U "Theatre as a Conversation: How to Talk to Students About the Hard Stuff"

HSB 304 (Health Sciences Building)

Moderators: Julia Metzker

Presenters: Cooper Drake, Fidelis Folifac, Candiss Hill, Sara Toro, Alexa Williams

Faculty Mentor: Karen Berman

Augusto Boal, Theatre of the Oppressed practitioner and theorist says, "The theater itself is not revolutionary: it is a rehearsal for the revolution." It is my most deeply seated philosophy that life imitates art. Life can be rehearsed, but remain delightfully unpredictable. In this session, participants will imagine a world where we think before we speak. We will communicate intentionally, revolutionarily and kindly. As an academic and product of the education system, arguably the greatest and most challenging task facing educators is meeting students where they are in a system that often is not suited for that type of flexibility. "Millennials" look to their education to provide them with a set of skills for dealing the world we both inherited and are helping to create, and educators must be prepared to engage them in unique and new ways. This session will particularly benefit those educators with little to no experience with discussing activism or practicing theatre and those who have been connected to social justice education for thirty or more years. A small troupe of Georgia College students will, through a series of problematic scenarios society faces everyday, help educators brainstorm how to talk to students about themselves, their perception of the world, what happens to and around them and what they can do about it. Today, we will figure out the awkwardness, the uncomfortability, the root of conversations regarding law enforcement, racial and ethnic discrimination on college campuses and beyond,

and the LGBTQIAA community. Today, we will act! Today, there is no audience, only spec-actors transforming into protagonists. Today, we won't watch, we will do. Let's rehearse!

2:30pm – 3:45pm **O Comparing Detroit and Los Angeles: Common Issues and Different Results** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Hang Su

Faculty Mentor: Amy Sumpter

Detroit, the “Motor City”, was one of the most populous cities in the United States before the 1980s. However, since the auto-making industry experienced a downturn during the 1970s when facing the increasing labor cost and competition in the global market, the city of Detroit has encountered social and economic difficulties for the following decades. On July 18, 2013, the city of Detroit filed for bankruptcy, which became the largest municipal bankruptcy case in the US history. This post-industrial city, alongside with nearly 40% of its population below poverty level, have experienced a hard time to adjust its economic structure for recovery¹. In contrast, the city of Los Angeles (L.A.), on the other side of the coast, has grown to be the second largest city in the United States since the beginning of 21st century. The population of the Greater Los Angeles area increased from 576,673 in 1920 to 2.9 million in 1980, and expanded to another million for the next two decades², driven by the developing of computer and information technology, mass communication, filmmaking industries and high-tech manufacturing. Now, the city has become not only one of the “megacities” in the world, but also the regional center for business and culture on the west coast of the North America. Comparing to the luxury and splendid Hollywood Boulevard in the “City of Angels”, the street views of “abandoned buildings, vacant lots and unlit streets” in Detroit tells a completely different story (Davey and Walsh). The question is, how did that happen?

2:30pm – 3:45pm **O Do NFL Stadium Subsidies affect the Local Economy?** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Klaire Fisher

The purpose of this study is to see if NFL stadium subsidies have an effect on the local economy. I will be using MSA and state level panel data for various cities containing publically-funded stadium projects between 1997 and 2014. The dependent, endogenous variable used to measure economic effect is the real per capita income of the individual city over time. In addition to my stadium explanatory variable, I also control for differences in real per capita consumption expenditures, real per capita welfare income, the unemployment rate, the education level of an average person over 25, the interest rate, the year, and MSA-level fixed effects. Using this quasi-difference-in-difference technique, I find that stadium subsidies have a statistically significant, negative impact on the local economy.

2:30pm – 3:45pm **O Does Industry Diversification Affect Economic Growth** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Jonathan Wade

Small towns in the United States are often dependent on a single industry. West Virginia coal towns, Western boom towns, and towns located along Route 66 are classic examples. Utilizing panel data collected over a period of 5 years for each county in the state of Georgia from the Bureau of Labor Statistics, the American Community Survey, and Georgia Statistical Analysis, I estimate the impact of industry intensity on economic growth. Using standing businesses in each county as a proxy variable for economic growth, I find results that indicate that industry intensity has a positive result on economic growth. This finding implies that industry concentration has short term benefits.

2:30pm – 3:45pm **O Right to Work and Unemployment** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Connor Kimball

This paper examines the effect of Right to Work laws on unemployment in individual states. I use data from 2009-2014 gathered by the Bureau of Labor Statistics and the United States Census. I use a linear regression model where the presence of Right to Work laws is a dummy variable and state level fixed effects account for unobservable differences between states over time. Right to Work laws have been passed by 25 states as of 2016 and are controversial as previous studies have produced mixed results, and the effect of these laws may have major implications in the ability of unions to benefit from collective bargaining.

2:30pm – 3:45pm **O Volkswagen's Incentives: Does automotive regulation affect industry output?** HSB 201 (Health Sciences Building)

Moderators: J.J. Arias

Presenters: Fritz Young

Volkswagen demonstrated conclusively during their recent PR disaster that automotive industry regulation can significantly impact decision-making. I examine the effect of automotive regulations on the output of the international automobile industry. Using country-level panel data from the United States and the European Union, I estimate an OLS model. Utilizing a strong measure of regulation, word count, and country-level fixed effects, I expect to find a negative relationship between the volume of regulation and national automotive output. If so, this finding will illustrate the potential, unintended consequences of regulatory schemes, as demonstrated Volkswagen's attempts to skirt US emissions regulations.

2:30pm – 3:45pm

I Media Bias in the 2016 Presidential Election

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Maggie Coleman, Lauren Nielly, Amy Strang, Anna Tuck, Sierra Wirt

Faculty Mentor: Mary J. Land

This research analyzed the way media outlets frame their stories and how they portray each candidate in the 2016 presidential campaign. Several news outlets covered the different candidates and there is often questions of whether or not there is media bias based on certain news outlets. There is often speculation that certain news sources favor one party over the other. Do news sources truly remain neutral? In this research, randomly selected articles were examined from three news sources over the course of three months, December 2015 through February 2016. This research examined articles from Fox News, typically seen as conservative, MSNBC, typically seen as liberal and CNN, typically seen as neutral. The content was analyzed to determine whether bias exists in each of these news sources.

2:30pm – 3:45pm

I Media Bias in the Presidential Election in Newspaper

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Benjamin Arduino, Connor Goldman, Jennifer Jacobs, Mycah Sibert

Faculty Mentor: Mary J. Land

This research will look at articles from three newspaper sources covering presidential candidates during the 2016 election. Political framing in the media will be analyzed through content analysis of The Wallstreet Journal, USA Today, and The Washington Post. Articles published from October 2015 to March 2016 will be examined. This research will then seek to examine media framing in newspaper sources in regards to bias surrounding the political candidates for the presidential election.

2:30pm – 3:45pm

I Political Bias Towards 2016 Presidential Candidates in Online Newspapers

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Benjamin Arduino, Joseph Goldman, Jennifer Jacobs, Mychah Siebert

Faculty Mentor: Mary J. Land

This research will look at articles from three newspaper sources covering presidential candidates during the 2016 election. Political framing in the media will be analyzed through content analysis of The Wallstreet Journal, USA Today, and The Washington Post. Articles published from October 2015 to March 2016 will be examined. This research will then seek to examine media framing in newspaper sources to analyze biases found in online newspapers, specifically in reference to the upcoming 2016 presidential election. The research will assess how negatively or positively candidates are reported based on gender, race, and political affiliation, and from there will determine if political bias in online newspapers exists.

2:30pm – 3:45pm

I Presidential Election Coverage in Local and National Newspapers

HSB 209 (Health Sciences Building)

Moderators: Jim Schiffman

Presenters: Hope Beavers, Natalie Davis, Cameron Schulte, Anna Trapnell

Faculty Mentor: Mary J. Land

This research studied the potential biases found in local and national newspapers regarding presidential election coverage. Biases were measured by a content analysis in order to assess the positivity and negativity in local versus national newspapers and to determine if coverage varied depending on newspaper location. The content analysis was completed by studying the presidential election coverage in three newspapers with national circulation and three newspapers with local circulation, spread out geographically across the United States.

2:30pm – 3:45pm

4 Effects of Enrichment on Impulsivity as Measured by a Delay Discounting Task with Adjusted Magnitudes

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Brandon Hindman

Faculty Mentor: Kristina Dandy

I assessed the effects of enrichment on impulsivity in 10 Sprague Dawley rats which were randomly assigned to either an enriched or isolated condition. Impulsivity was defined as the choice of a smaller-sooner (SS) reward over a larger-later (LL) reward and was measured using a delay discounting procedure. I hypothesized that there would be an effect of rearing as a function of reinforcement magnitude. Subjects were placed in housing conditions post-natal 21 days and remained in their assigned condition throughout testing. The enriched condition consisted of two cohorts of three rats housed with four PVC pipes which were rotated weekly. The isolated condition consisted of single-housed rats with no additional stimuli. At 85 days of age subjects were placed on food restriction, proceeded to shape at 90 days, and then began testing on the delay-discounting task. Specifically rats chose between one food pellet immediately or three food pellets after a predetermined delay (0s, 10s, 20s, 30s, 40s, 60s). Subjects were then tested with adjustments made to LL rewards (five or zero pellets). Results revealed main effects of delay when food magnitude was set at zero, ($p = .001$) three ($p = .001$), and five food pellets ($p = .001$), indicating rats became more impulsive as delay to reinforcement increased. Also, Delay x Condition interactions emerged when magnitudes were set at three ($p = .001$) and five ($p = .006$) food pellets. Findings imply that enrichment induced impulsive behavior, and that this effect

is impacted by reinforcement magnitude.

2:30pm – 3:45pm

4 Forensic Collection of Trace Chemicals from Glass Surfaces

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Katherine Bean

Faculty Mentor: Kimberly Cossey

The project goal is to apply forensic chemistry techniques in an organic laboratory course to engage organic chemistry students. Forensic chemistry, a subfield of forensics was chosen so that the students could apply chemical knowledge and develop an applicable real world skill. During the initial literature search, an article was identified that outlined forensic techniques, instrumentation method and common chemicals found at crime scenes. Techniques such as swabbing with cotton and analysis with GC-MS (Gas Chromatography-Mass Spectrometry) were illustrated in the article and determined to be applicable in the laboratory setting. Chemicals similar in structure to chemicals commonly found in crime scenes will be used, however many of the exact compounds found in forensics would be unsafe or illegal. Therefore, alternative compounds had to be found that would give similar GC-MS results. Samples were then prepared with an internal standard and run through the GC-MS. Analysis of retention times demonstrates a separation of the components in the mixture, and by comparing the M+ peak to literature, the identity of each compound can be determined. As a result, GC-MS was used to separate and identify the chemicals found on a surface. Now that the ideal set of chemicals is determined, the swabbing and extraction portion of the experiment will be tested. Then, an experimental procedure will be written to help students to learn about extraction, functional groups, and spectral interpretation (GC-MS) through this forensic chemistry experiment.

2:30pm – 3:45pm

4 Studies on the Effectiveness of Sol-Gels in the Controlled Release of Fragrant Materials

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Karen Ehret

Fragrances are a common feature of many commercial products, making them an important part of product design. This project examines the use of sol-gels as a controlled release method for essential oils by analyzing fragrance release through GC/MS headspace sampling. Specific areas of study include determining the ideal essential oil concentration, measuring the intensity of the fragrance released, expanding the fragrance lifespan, and restoring fragrance to evacuated gels.

2:30pm – 3:45pm

4 Synthesis of Aromatic alpha, beta-unsaturated Carboxylic Acids Using Green Knoevenagel Condensation

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Hasiat Madamidola

Faculty Mentor: Koushik Banerjee

Green synthesis is a growing sect of organic chemistry because of its work in preventing and minimizing hazardous waste. A green method to synthesize unsaturated carboxylic acids by Knoevenagel-Doebner condensation from aldehyde precursors was investigated due to their range of activity. Trans-cinnamic acids have been found to have uses in medicinal/biochemical purposes, like protein inhibition and amino acid synthesis. In this experimentation, m-chlorocinnamic acid, and p-bromocinnamic acid were synthesized from 3-chlorobenzaldehyde, and 4-bromobenzaldehyde, respectively. The 3-chlorobenzaldehyde, 4-bromobenzaldehyde, derivatives were successfully synthesized, characterized and quantified with a percent yield of 92% and 99%, respectively. This work utilizes the research gained from the successful derivatives, as intermediaries, for photochemical dimerization.

2:30pm – 3:45pm

4 Synthesis of Novel Flavonoid Derivatives as Acetylcholinesterase Inhibitors for the Treatment of Alzheimer's Disease

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Jennifer Minnick

Faculty Mentor: Chavonda Mills

Research has shown that the neurotransmitter acetylcholine (ACh) is less expressed in the brain of Alzheimer's patients when compared to normal patient's levels. It is proposed that this decrease stems from the hydrolysis of ACh by the enzyme acetylcholinesterase (AChE). As a result, acetylcholinesterase inhibitors have been identified to be a viable option as a disease-modifying treatment for cognitive deficits of patients with Alzheimer's disease. Flavonoids, natural products that exhibit acetylcholinesterase inhibitory activity, can potentially serve as promising leads for the treatment of Alzheimer's disease. Through the use of rational drug design, this research project will advance the synthesis of novel flavonoid derivatives that incorporate nitrogen-containing fused heterocyclic rings, which were identified through SAR as crucial structural elements, in an effort to propose an effective treatment of Alzheimer's disease.

2:30pm – 3:45pm

4 Using Multi-Step Synthesis for the Production of Hydrogels with Adhesive Properties

HSB 207 (Health Sciences Building)

Moderators: Catrena Lisse

Presenters: Jennifer Deardorff

Hydrogels are networks of polymer chains that are highly absorbent and flexible similar to natural tissue. Currently

hydrogels are being used in controlled drug delivery, fluid control, nerve regeneration and tissue engineering. 1 The production of a remote activated, polyacrylamide hydrogel system is a multi-step synthesis. The first step investigated was the formation of a copolymer via free-radical polymerization using the starting material dopamine hydrochloride reacted with sodium tetraborate decahydrate and sodium bicarbonate. This presentation will highlight the experimental design and multi-step synthesis for the production of hydrogels.

Reference

1 Deligkaris, Kosmas, Tadele Shiferaw Tadele, Wouter Olthuis, and Albert van den Berg. Hydrogel-based devices for biomedical applications. *Sensors and Actuators B: Chemical*. 2010, 147, 2, 765-774.
