

Oral & Poster Presentation Abstracts

Molly Buffington, A&S - History

Faculty Mentor: Charles Clark, A&S - History

American Views of the North Russian Expedition, 1918-1928

From 1918 to 1919, as the Great War raged in the trenches and calmed in the Armistice, a small group of American forces were fighting and dying in one of the most overlooked armed conflicts in our history. Sent to extreme northern Russia and based out of the port of Archangel, the Americans were under orders from President Wilson to guard Allied weapons stockpiles from possible German insurgents, but found themselves joining the French and British in attacking Bolsheviks on Russia soil. From first-hand accounts such as Cudahy's *Archangel: The American War with Russia* to more recent overviews like Crownover's *The United States Intervention in North Russia*, the literature written on this engagement stresses the confusion and depression these soldiers felt. They were denied any coherent explanation for their mission from their own government and nearly forgotten by all but their mothers and wives. The research I am currently involved with looks at how the Americans viewed this bizarre escapade and their Bolshevik enemy. So far, I have been analyzing newspaper articles, correspondences, and other primary sources to determine what the American soldiers and people's initial impression of Soviet Russians were, three decades before the Cold War began. While this escapade has all but been erased from America's historical timeline, by better understanding this forgotten episode of Russian-American relations, we may gain more insight into the years of tension that followed.

Oral & Poster Presentation Abstracts

Rebecca Murdoch, C&IS - Telecommunication and Film

Faculty Mentor: Kristen Warner, C&IS - Telecommunication and Film

The Matriarch-Tree: Motherhood and Intergenerational Feminism in Gilmore Girls and Jane the Virgin

In this research paper I will be exploring the familial relationships, specifically the matriarchal roles and dynamics in the WB's *Gilmore Girls* (2000-2007) and the CW's *Jane the Virgin* (2014 -). Through analysis of individual episodes, commentary and criticism from academic and popular culture sources, as well as my own autoethnographical account of my personal connections, I will demonstrate the ways in which feminism is passed down through generations. In both shows, the focus rests on three generations of women in a family. For *Gilmore Girls*, we see the lives and struggles of Lorelei Gilmore, single mother to Rory Gilmore, the smart, young daughter, and Emily Gilmore, the grandmother and matriarch of the Gilmore family. Similarly, in *Jane the Virgin*, the majority of attention is placed on Jane Villanueva, the type-A, independent daughter to single mother, Xiomara Villanueva, and granddaughter to, Alba Villanueva, the matriarch of the Villanueva family. Analysis of these television shows will illustrate how feminism enacted through its characters has influenced the development of feminist beliefs in a new generation of viewers as well as revealing how the shows themselves have been influenced by the progression of feminist movements.

Oral & Poster Presentation Abstracts

Sarai Russell, A&S - English

Faculty Mentor: Barbara Brickman, A&S - New College

Greased Lightning

The musical *Grease*, from its initial debut at the Kingston Mines Theater in Chicago, to its much changed appearance on the big screen in 1978, has been alternatively lauded and criticized for appealing to nostalgia. Many have said that *Grease* is a throwback that appeals to those who wish to return to the more conservative time period in which *Grease* is set. However, by examining fan response throughout the years to the various incarnations of *Grease*, it is possible to reconstruct an alternative narrative of the *Grease* fan that does not ascribe to the traditional social mores of the 50s. In order to illustrate the alternative ways in which fans interact with *Grease*, I will catalog fan response on various fansites such as Tumblr, Archive of Our Own, and Fanfiction.net, as well as in the wider media. Furthermore, I will document the change in the fandom over time by examining older examples of fan response and fan works on websites such as geocities. I will also utilize databases such as Lexis-Nexis and EBSCO in order to obtain a more accurate image of early fan response to *Grease*. In order to further illustrate the way in which fans interact with *Grease*, I will also catalog fan works such as fan art and fan fiction.

Oral & Poster Presentation Abstracts

William McCrary, A&S - History

Faculty Mentor: George Rable, A&S - History

Civil War Values: What the War is Doing to the Country

This project studies the values of soldiers in the American Civil War and how the war affected them. The Civil War is still a popular topic of conversation over one hundred fifty years after it ended, and this research provides a look at what the men who were there thought. Both Union and Confederate soldiers are analyzed through newspapers, pamphlets, and their own letters to gain a firsthand view of what mattered to those who fought. Between the opposing sides, southern soldiers considered those from the north to be haughty and unkind, while northern soldiers considered their brethren from the south to be undisciplined and barbaric, yet, upon examination, soldiers of both sides were about equally concerned with topics such as virtue, discipline, pride, and masculinity, among others. By presenting the values of the soldiers, the views of the culture around them and ideas that made them fight can become clearer.

Oral & Poster Presentation Abstracts

Liza Rogers, HES - Clothing, Textiles and Interior Design

Peirson Rogers, HES - Clothing, Textiles and Interior Design

Faculty Mentor: Marcy Koontz, HES - Clothing, Textiles and Interior Design

(re)Fashioning Vintage: Visual Branding for a New Local Small Business with a Smart Phone Camera and Social Media Platforms

This Ol' Thing Vintage is a local small business that opened its first storefront in historic downtown Northport, Alabama in February 2015. It specializes in vintage southern clothing, shoes and accessories. This poster focuses on a project designed to create a visual branding/storytelling strategy in order to increase the businesses social media presence and ultimately its sales. Embracing the social media phenomenon is vital for businesses of all sizes. Many have successfully translated their brands strategy online and, through effective visual storytelling, are reaping the monetary benefits. Over a six-week period, current fashion trends were researched and forty-two looks were styled featuring vintage clothing, shoes and accessories. Photographs of each look were taken using a smart phone camera in the same location and time of day. One photograph was posted to the business's Instagram and Facebook accounts each day during the project timeframe. At the end of each week, the total number of account followers along with the total number of likes and comments for each photograph were documented. In addition, the business owner featured each of the items photographed within the store and recorded the date of sale for each item. Results of this visual branding strategy project revealed increases in social media interactions, in-store foot traffic and sales.

Oral & Poster Presentation Abstracts

Coleman Harris, Engineering - Computer Science
Faculty Mentor: Adam Hauser, A&S - Physics and Astronomy

ZrOH4 nanoparticles for impedance-based NO2 detection

Nitrogen Dioxide (NO₂), produced as a byproduct of burning fossil fuels, is poisonous to humans and promotes environmental issues such as acid rain. Zirconium hydroxide (Zr(OH)₄) has been investigated as a candidate NO₂ dielectric sensor using impedance spectroscopy analysis. Significant changes in electronic and physical properties down to a dosage minimum of 50 ppm·hr have been observed. Using pressed pellets of Zr(OH)₄ in parallel plate geometry, we observe signal shifts of 272%, 2,374%, and 1,011,425% for NO₂ dosages of 50, 200, and 1,000 ppm·hr, respectively. Changes in impedance correlate with nitrogen and oxygen atomic ratio increases observed via X-ray photoelectron spectroscopy (XPS). The results indicate that Zr(OH)₄ may be a strong candidate for use in impedance-based NO₂ detection devices.

Oral & Poster Presentation Abstracts

Phoebe Burns, Engineering - Computer Science

Faculty Mentor: Monica Anderson, Engineering - Computer Science

Natural Interface to Smart Environment

One of the most common technical devices that the everyday consumer has is some form of smart device. Even though smart devices facilitate certain activities such as online banking, a study shown in the book, *Human-Computer Interaction: Designing for Diverse Users and Domains*, showed that 32 million people that were 55 years and older had a computer, but 26% of adults aged 65 and older used the Internet in 2009. Even though the elderly are less likely to use the internet, smart devices could help one of the main problems that the elderly face, which is staying in their homes. Our research presently involved integrating natural human interaction with smart devices via Voice Recognition and Human Avatars. The goal for natural interface interaction is to help the user feel comfortable with using applications by mimicking human communication with voice recognition and understanding. Once the goal has been tested, the interface may be implemented into much larger projects such as smart environments.

Oral & Poster Presentation Abstracts

Christian Hutley, Engineering - Electrical and Computer Engineering
Faculty Mentor: Monica Anderson, Engineering - Computer Science

Pervasive Computing - Collecting User Habits at Scale

The objective of my Emerging Scholar research project is to create a communication network to relay data between a variety of sensors functioning within a modular system. Sensors within this modular system will be required to send and receive raw data like temperature, humidity, and occupancy; use the data to optimize electrical consumption and air conditioning; operate window blinds, lights, vents, gas lines, sprinklers, pool pumps, and other appliances. The modular system would include voice recognition capabilities that accepts commands to control specific actuators, and set user preferences. The development of this modular system is a group effort and will integrate multiple Emerging Scholar research projects. I used Netcat V-1.82 as a base for the communication network. Netcat is a free, open-source, C-based, file transfer and port monitoring program designed to act as a networking diagnostic tool. Netcat is able to send and receive files on user specified ports, ping users, report and record data transfers over ports, and port scan the local IP for connections. Its simple design and small file size allow it to operate on Raspberry Pi's and Arduino's without using too much memory or electricity. These capabilities, combined with the freedom to modify and download, made Netcat the best choice for base of the communication network.

Oral & Poster Presentation Abstracts

Jennie Kriznik, HES - Human Development and Family Studies
Faculty Mentor: Asma Hatoum-Aslan, A&S - Biological Sciences

Combatting Drug-Resistant Staphylococci with Bacterial Viruses

Antibiotic resistance of bacterial infections is a major public health issue. Staphylococci are pathogens that can cause infections that are resistant to all known antibiotics, which calls for alternative treatment strategies. Bacterial viruses (phages) are ubiquitous in nature and can be isolated and cultured from a variety of sources, including wastewater and natural water sources. Phages are the biggest, and most natural threat to bacteria, making them viable candidates as alternatives to antibiotics. The goal of this study is to identify and characterize novel phages that attack *Staphylococcus epidermidis*, which is commonly associated with infections involving medical implants. We have isolated and purified a variety of phages from the Tuscaloosa Wastewater Treatment Plant. Using microbiological techniques, transmission electron microscopy, and genomic analysis, we have confirmed that these are unique phages with potent anti-staphylococcal activity. Future work will identify and purify the proteins responsible for staph lysis. At the conclusion of this project, we expect to provide tangible therapeutic alternatives to fight *Staphylococcus* infections.

Oral & Poster Presentation Abstracts

Pierce McLawhorn, A&S - Mathematics

Faculty Mentor: Burcu Keskin, C&BA - Information Systems, Statistics and Management Science

Online Optimization: Applications in Healthcare, Public Safety, and Supply Chain Management

Optimization problems determine the efficient allocation of resources, in order to maximize the benefit or minimize the cost of a system. Traditionally, it was assumed that all of the parameters and requirements within a system are available at the same time. However, in many problems that arise in the real world, not everything is known in advance, and a system must adapt. Even with the advent of increasingly accurate prediction algorithms, the future is ultimately uncertain. For example, a hospital does not know in advance the number, arrival time, or condition of patients. This can result in life or death scenarios where patients are unable to receive proper treatment due to a misallocation of resources by the hospital. The developing field of Online Optimization provides solutions to these types of problems. Online Optimization involves designing algorithms for a system in which data inputs are unknown ahead of time; that is, details such as the time, place, and location of a request are unknown to a system until the request is received. The purpose of this presentation is to elucidate both the methodology behind and the benefits of an online optimization approach to problems in the areas of Healthcare, Public Safety, and Supply Chain Management. I discuss the financial and human costs of situations in each of these areas, examples of proposed solutions, and provide insight into the vast potential for benefits resulting from further research into this field.

Oral & Poster Presentation Abstracts

Michael Patterson, A&S - Chemistry

Faculty Mentor: Daniel Goebbert, A&S - Chemistry

Johnny Lightcap, A&S - Chemistry

Fragmentation of copper acetate nitrate anion complexes

The study of the properties and reactivity of metal complexes with mixed ligands is an interesting area of chemistry. Our group has previously studied the properties of copper nitrates and copper acetates. The goal of this experiment was to investigate the properties of mixed copper acetate nitrate anion complexes. Ions of interest were generated by electrospray ionization of a 1 mM solution of 90% copper acetate and 10% copper nitrate in methanol/acetonitrile solvent. Experiments were carried out in a TSQ 7000 mass spectrometer. The instrument selects ions by their mass, followed by collision induced dissociation. The ions of interest for this experiment were $[\text{Cu}(\text{NO}_3)(\text{CH}_3\text{CO}_2)]^-$ (m/z 184), $[\text{Cu}(\text{NO}_3)_2(\text{CH}_3\text{CO}_2)]^-$ (m/z 246), and $[\text{Cu}(\text{NO}_3)(\text{CH}_3\text{CO}_2)_2]^-$ (m/z 243). Interestingly, $[\text{Cu}(\text{NO}_3)(\text{CH}_3\text{CO}_2)_2]^-$ could not be synthesized. The $[\text{Cu}(\text{NO}_3)_2(\text{CH}_3\text{CO}_2)]^-$ complex yields fragments at m/z 187 from loss of CH_3CO_2 , and m/z 184 by the loss of NO_3 . The $[\text{Cu}(\text{NO}_3)(\text{CH}_3\text{CO}_2)]^-$ complex forms fragments at m/z 140 from the loss of CO_2 to yield $[\text{Cu}(\text{NO}_3)(\text{CH}_3)]^-$, m/z 138 from loss of NO_2 to yield $[\text{CuO}(\text{CH}_3\text{CO}_2)]^-$, along with the secondary products, m/z 94 $[\text{CuO}(\text{CH}_3)]^-$ and m/z 79 $[\text{CuO}]^-$.

Oral & Poster Presentation Abstracts

Kathryn Shay, A&S - Geography

Faculty Mentor: Eben Broadbent, A&S - Geography

Angelica Almeyda Zambrano, A&S - Geography

Automated Methodologies for Quantifying Avian Composition and Abundance

Alabama supports among the highest biodiversity of all states in America, but also presents among the greatest risks for loss of species. Projected changes in climate coupled with increased conversion of natural habitats to anthropogenic land uses will only further exacerbate these problems. In this context, interactions among native and exotic bird species may play a role in causing large changes in bird composition and abundance in the future. To understand future changes in bird populations requires creating a good baseline understanding of present day population dynamics and then extending this monitoring approach into the future. This project focuses on developing applicable automated methodologies for avian population monitoring through computer analyses of high fidelity omnidirectional audio recordings. Automated analyses of the audio data is being done with SongScope and custom R-algorithms. Bird calls are identified by species in the program through the creation of custom recognizers for each species that may be in Alabama. Results from this project will include a new methodology for monitoring avian composition and abundance, a good understanding of seasonal variations in their populations and linkages with climatic variables, and the collection of critical preliminary data and experience necessary to monitor bird population dynamics across the entire state of Alabama using the methods developed and tested in this project.

Oral & Poster Presentation Abstracts

Nickolas McCarley, Engineering - Electrical and Computer Engineering
Faculty Mentor: Jeff Gray, Engineering - Computer Science

Robotic Navigation through Gesture Based Control

Robotic Navigation Through Gesture Based Control (RNGBC) assists people who may not be able to operate a smart device using their fingers. These individuals might face limitations due to physical disabilities or may be in a job where their fingers are not free to operate the smart device. For this project, a motion sensor was used in combination with a robot. The sensor was used to capture gestures and operate the robot. The tools used are the Leap (a device that reads 3D gesture motion), the Sphero (a remote controlled rolling ball), and a laptop. RNGBC uses the Leap device to control the Sphero with hand gestures. This technology is important because navigation through gestures can be adapted towards larger contexts, such as helping someone in a wheelchair move around or assisting someone who does not have their hands available when performing a job task.

Oral & Poster Presentation Abstracts

Michael Kuhlman, Engineering - Chemical and Biological Engineering
Faculty Mentor: Hung-Ta Wang, Engineering - Chemical and Biological Engineering

Thickness Identification of Epitaxial Bi₂Te₃ via Optical Contrast

Thickness identification of two-dimensional (2D) nanosheets is essential for determining the mechanical, optical, and electronic properties of 2D materials. Bismuth telluride (Bi₂Te₃) is a 2D material known for its promising thermoelectric properties and potential dissipationless charge transport in the topological surface states. To date, thickness measurements of Bi₂Te₃ 2D nanosheets are mainly carried out via atomic force microscope (AFM) or Raman spectroscopy. Here, we investigate a practical, rapid, inexpensive, and non-invasive thickness measurement technique that utilizes the optical contrast of Bi₂Te₃ 2D nanosheets on mica substrates (i.e., as-grown) and SiO₂/Si substrates (i.e., transferred). The optical reflectance intensity and the corresponding contrast are studied as a function of Bi₂Te₃ thickness, illumination wavelength, and substrate thickness. Deviations between experimental and calculated optical contrast values are observed, which is ascribed to the important roles in normal light incidence and size-dependent refractive indices of Bi₂Te₃. Further, an easy recipe is provided with this report to be generally applied for such a thickness identification method for 2D materials in any laboratory.

Oral & Poster Presentation Abstracts

Alexandra Mannings, A&S - Physics and Astronomy

Faculty Mentor: Jeremy Bailin, A&S - Physics and Astronomy

Krista McCord, A&S - Physics and Astronomy

Exploring Parameter Space: A look at galactic evolution through simulations

This project focuses on a simulation that attempts to accurately trace the evolution of galaxies through looking at their stellar halos. Studying stellar halos provides a great deal of information on the evolution of galaxies and how small interactions and mergers within the halo can result in a galaxy like our own. Through models, we study these accretion events from beginning to end, eventually ending with a collection of galaxies and their stellar halos. Using two types of evolutionary simulations, an N-body simulation which focuses on dark matter and a semi-analytic model which introduces baryonic structure, we can determine what galaxies should look like within the halo. The code being developed- called CoSANG- takes these two and stitches them together to create a comprehensive stellar halo model. Although CoSANG uses all of this information, it focuses on the dark matter- using the semi-analytic model only to determine forces that affect the stellar halo, saving computational power. However, since CoSANG bases its calculations of galaxy forces off of the semi-analytic model and applies them to the N-body simulation, a number of different parameter values can result in realistic galaxy populations. My goal is to explore the semi-analytic model's parameter values to find the acceptable range, so we can see how these affect the results of the simulation.

Oral & Poster Presentation Abstracts

William Bounds, Engineering - Electrical and Computer Engineering
Faculty Mentor: Jeff Jackson, Engineering - Electrical and Computer Engineering

Customizable Vehicle Diagnostics Application Utilizing Bluetooth

Access to vehicle diagnostics information is increasingly important to automotive professionals and hobbyists as the complexity of vehicles continues to rise. The goal of this design project is to develop a cross-platform application targeted at tablets for the display of relevant diagnostics information to an end-user over a Bluetooth connection. The automotive industry uses a standard called On-board Diagnostics II (OBD-II) to allow vehicles to monitor and report critical diagnostics information. This information is freely available to technicians and everyday consumers via the SAE J1962 standardized hardware interface, easily accessible from the driver's seat of most vehicles. Modern scan tools can connect to this hardware interface and relay the information via a Bluetooth connection. The application was developed using the QT application framework. QT provides users with a visual interface for designing a GUI for the application. Programming the application in QT utilizes standard C++ with a number of extensions, most notably a signal-slot paradigm for the handling of events. The application works by creating an RFCOMM Protocol Bluetooth connection between the tablet and the OBD-II adapter. The application then periodically queries the adapter for diagnostics information. This information is converted to human-readable information and displayed to the end-user. The diagnostics information displayed can be customized by the user from a list of available commands.

Oral & Poster Presentation Abstracts

Charles Pitsenberger, A&S - Biological Sciences
Faculty Mentor: Jeffrey Lozier, A&S - Biological Sciences

*Identifying candidate genes involved in color differentiation in *Bombus bifarius**

Bumble bees (*Bombus*) have highly variable color patterns, with polymorphism occurring both within and among species that can be attributed to Müllerian mimicry for predator defense. *Bombus bifarius* is a western US species which exhibits phenotypic variation among the two major subspecies. The bumble bee *B. bifarius bifarius* subspecies displays a red banded abdomen, while the *B. bifarius nearcticus* subspecies exhibits varied patterns that range from black abdominal bands in western populations to "intermediate" mixed orange and black colored hairs in central populations. Previous studies showed *B. bifarius bifarius* and *B. bifarius nearcticus* to be too divergent to identify genome regions involved in pigmentation, however next generation sequencing of the two *B. bifarius nearcticus* varieties suggests high genetic differentiation at a potential candidate gene that may play a role in pigmentation based on knowledge from other insects. Initial sample sizes for sequencing were small, so I confirmed DNA sequence variation between individuals at this gene using PCR and Sanger sequencing on a larger sample of bees. Results could have important implications in understanding the genetics of color pattern evolution in bumble bees.

Oral & Poster Presentation Abstracts

Ethan Lewis, A&S - Chemistry

Faculty Mentor: Jane Rasco, A&S - Biological Sciences

Development of an Outbred Strain of Celiac Disease in Swiss Webster Mice

Celiac Disease (CD) is an autoimmune and digestive disorder resulting in an intolerance to gluten in genetically predisposed people. Gluten interacts with the lining of the small intestine affecting the villi and microvilli. These structures are integral in the absorption of nutrients by changing their surface area. When the villi and microvilli are damaged it can lead to abdominal bloating, diarrhea, weight loss, iron deficiency, and anemia. It is estimated that 1 in 100 people have CD worldwide. This study was devised to develop an outbred model of CD in Swiss Webster mice. Inbred models of CD have been used in the past. Inbred models cost approximately four times more than outbred strains and only have a 60% fertility rate. The successful development of an outbred model of CD would save researchers money by decreasing the rate of euthanasia for lab animals and reduce the number of original animals needed due to infertility. The Swiss Webster mice for this model were bred for three generations and fed a gluten free diet to induce gluten intolerance. Gluten intolerant animals were divided into two treatment groups - gluten free and gluten. The animals were maintained on their diet for 90 days. The small intestines were then harvested and preserved in 10% paraformaldehyde for histological examination. It is hypothesized that gluten exposure will lead to villus atrophy, crypt hyperplasia and increased infiltration of intraepithelial lymphocytes.

Oral & Poster Presentation Abstracts

Lucas Nelson, A&S - Biological Sciences

Megan McCorkle, Education - Kinesiology

Madeline Peterson, A&S - Biological Sciences

Madeline Peterson, A&S - Biological Sciences

Brianna Zarrinfar, A&S - Biological Sciences

Faculty Mentor: Jonathan Wingo, Education - Kinesiology

Matthew Leatherwood, Education - Kinesiology

Tori Stone, Education - Kinesiology

Effect of Exercise Mode on Cardiovascular Drift and Maximal Oxygen Uptake During Heat Stress

Cardiovascular drift-the progressive rise in heart rate and decline in stroke volume over time during constant, moderate-intensity exercise-is related to reduced maximal oxygen uptake ($\dot{V}O_{2max}$) during heat stress. Exercise mode impacts the magnitude of cardiovascular drift under thermoneutral conditions, but the extent to which exercise mode impacts cardiovascular drift and a decrement in $\dot{V}O_{2max}$ in hot conditions remains unknown. Purpose: to test the hypothesis that a greater magnitude of cardiovascular drift will be accompanied by a greater decrement in $\dot{V}O_{2max}$ during cycling compared to running in the heat. Methods: Six men completed 2 graded exercise tests (in 22 °C) to determine $\dot{V}O_{2max}$ on the cycle ergometer (BIKE) and treadmill (TM), respectively, followed by 4 experimental trials (in 35 °C) performed at 60% $\dot{V}O_{2max}$ in a counterbalanced order-cycling for 15 and 45 min and running for 15 and 45 min, each immediately followed by measurement of $\dot{V}O_{2max}$. Results: The magnitude of cardiovascular drift and decrease in $\dot{V}O_{2max}$ between 15 and 45 min were similar between cycling and running. Conclusion: These preliminary data support 2 main conclusions; 1) the magnitude of cardiovascular drift during running is not different from that during cycling at a comparable intensity during heat stress, and 2) the relationship between cardiovascular drift and a reduction in $\dot{V}O_{2max}$ during heat stress appears to hold regardless of whether the exercise is cycling or running.

Oral & Poster Presentation Abstracts

Paul You, Engineering - Chemical and Biological Engineering

Faculty Mentor: John Van Zee, Engineering - Chemical and Biological Engineering

Understanding the Effect of Solution Chemistry on Electroplated Ni-Mo Alloys

High Mo content in nickel-molybdenum alloys increases the wear and corrosion resistance of the alloy, and these alloys have the potential to augment chromium coatings. Understanding the process variables that affect the Mo content may allow for the development of new catalysts. Mo can only be co-deposited by other iron group metals such as nickel, thus forming an alloy. Recent literature indicates that these alloys may be produced electrochemically from ammonium citrate plating baths. The chemistry of the plating bath is complex and involves monomers, dimers, and trimers of nickel citrate and molybdenum citrate. The purpose of this work is to describe the chemistry of these baths and their dependence on the pH which changes during plating. For this paper, we seek a prediction tool by solving solve the equilibrium reactions which occur in the plating bath. That is, although the literature shows studies of Mo-citrate and Ni-citrate baths, the interaction of these species has not been explored. We then analyze the various hypotheses that have been proposed to explain the mechanism of co-deposition. Ultimately, we seek a transport model that accounts for the reaction mechanisms and electrochemical parameters of the reactions. Our goal of the research is to explain previous experiments of Ni-Mo alloy co-deposition, and propose a plausible co-deposition with equation and determine the parameters of the reactions.

Oral & Poster Presentation Abstracts

Reagan Hattaway, HES - Human Nutrition and Hospitality Management

Mary Clay Kline, C&IS - Journalism

Faculty Mentor: Kristi Crowe-White, HES - Human Nutrition and Hospitality Management

Phenolic and Flavonoid Content of Phyllostachys aurea

Background: Bamboo contains phenolic and flavonoid phytochemicals that exhibit free radical scavenging activity and may function as antioxidants in food products, cosmetics, and sunscreen. Research suggests that macronutrients in bamboo vary with shoot maturity such that newly emerging shoots are nutritionally superior to older shoots. It is unknown if shoot maturity influences phytochemical levels. **Purpose:** To assess the influence of bamboo shoot maturity on phenolic and flavonoid phytochemicals **Methods:** Bamboo shoots (n=8) of 8-inch height were collected from a one acre grove of *Phyllostachys aurea* in Tuscaloosa, AL. Phenolic and flavonoid compounds were extracted in triplicate from upper and lower 4-inches of shoots. Phenolic content was measured according to the Folin-Ciocalteu assay using a gallic acid (GAE) standard. Flavonoid compounds were measured spectrophotometrically using a catechin (CE) standard. **Results:** No significant differences ($p>0.05$) were observed in phenolic content of the upper (31.49 ugGAE/g) and lower segments (28.03 ugGAE/g). Flavonoid levels were similar in both segments of all samples. Samples from various locations within the grove showed minimal variation in phytochemical levels. **Conclusions:** Phytochemical profile, unlike macronutrient levels, did not vary with shoot maturity. Results suggest that the harvest window can be lengthened without compromising phenolic density of emerging bamboo shoots destined for use in product development.

Oral & Poster Presentation Abstracts

Evan Brannon, Engineering - Civil, Construction and Environmental Engineering
Faculty Mentor: Ken Fridley, Engineering - Civil, Construction and Environmental Engineering
Thang Dao, Engineering - Civil, Construction and Environmental Engineering
Tu Ho, Engineering - Civil, Construction and Environmental Engineering

Impact of Wind on Structures

I am assisting Dr. Dao in his research on the impact of wind on structures. Wind can have a powerful and catastrophic impact on the integrity of a structure. It is important for structural engineers to understand the effects of wind in order to design a stable and durable structure. In order to test these effects, we had to build a wind tunnel. A wind tunnel is capable of generating a homogeneous wind pattern, but structures in urban and suburban areas are usually subjected to Profile B Wind patterns. We are currently building cubic spires in order to produce the desired wind pattern typical of suburban and urban areas. Once we have the perfect wind profile, we will test a small residential home that I modeled in AutoCAD. We will attach pressure sensors on the small-scale 3D model, and place it in the wind tunnel. We will also build a larger-scale (life-size) model, and through the use of an actuator and the wind pressure sensors, we can test both models simultaneously to see the effect that the wind has on one of our designs.

Oral & Poster Presentation Abstracts

Brenna Barber, Engineering - Mechanical Engineering

Rachel Ostrow, Engineering - Mechanical Engineering

Faculty Mentor: Keith Williams, Engineering - Mechanical Engineering

Beth Todd, Engineering - Mechanical Engineering

Instrumentation of an Orthotic Boot

Through the analysis of human locomotion, the forces on joints in the lower limbs can be better understood. An orthotic boot is typically prescribed after an injury to, or surgery on, a lower extremity. Part of the rehabilitation process while in the boot is gradually applying a patient's total weight onto the extremity, but gauging these loads in real time is near impossible. Thus, an instrumentation system is necessary for patients to easily determine this information, or else proper recovery will not occur. In this project, strain gauges will be used to measure the applied load at various points of contact in the boot. The gauges will be strategically placed on a 3D printed insole that will be placed inside of the orthotic boot. These sensors will be calibrated in order to accurately measure the load. Via Bluetooth technology, they will transmit information to an application on a mobile device, so patients will be able to easily determine how much weight they are applying to the injury and doctors will be able to monitor progress and prescribe changes as necessary. Experiments on several adult subjects will be performed in order to test and increase the accuracy, comfortability, and ease of use of the system. Data from these experiments will be analyzed in order to create an instrumentation system that can be used by patients of varying heights and weights. When complete, this research will be beneficial to the recovery of orthopedic patients world-wide.

Oral & Poster Presentation Abstracts

Ali Stedke, A&S - Biological Sciences

Rachel Brown, Engineering - Chemical and Biological Engineering

Coyt Majure, A&S - Biological Sciences

Majure,

Faculty Mentor: Matthew Jenny, A&S - Biological Sciences

Effects of Open and Closed Gates in a Plus Maze on the Associative Learning of Zebrafish

Alzheimer's Disease, the world's most common neurodegenerative disorder, was first discovered in 1906. Over a century later, we still do not know the cause of Alzheimer's. Our laboratory is currently developing a zebrafish model to support Alzheimer's research. The current project consists of documenting baseline data on the effects of age and sex on cognitive function in zebrafish. Such research will support future research activities that will compare the effects of different lifestyles, illnesses, genetics, environmental stressors, or a combination of any of these factors on the likelihood of developing Alzheimer's disease. A standardized Plus maze assay, in which a red card (cue) is paired with a food cube (stimulus), is being used to assess associative learning and memory in adult zebrafish. While both gates have openings that give the zebrafish access to a food cube, the openings on the closed gates are placed about an inch above the bottom of the gate. In contrast, the open gates have openings that reach the maze floor. Zebrafish spend the majority of the time swimming at the bottom of the maze; therefore, we hypothesized that the closed gates may provide an observable deterrent to the training, whereas open gates would be less stressful to their normal swimming behavior. Here we present the current data highlighting differences in cognitive function between male and female zebrafish that have been trained in a maze with closed gates versus those with open gates.

Oral & Poster Presentation Abstracts

Rebecca Denson, A&S - Biological Sciences

Allison Beggin, A&S - Biological Sciences

Sarah Quick, A&S - Biological Sciences

Quick,

Faculty Mentor: Matthew Jenny, A&S - Biological Sciences

The effects of aging on female zebrafish learning and memory capacity

Alzheimer's is the most common form of dementia, accounting for 60-80% of the cases. Although there is no current cure, research is continuing to explore any possible relationships to the disease. Zebrafish have many genetic similarities to humans in that they share a high degree of sequence and functional homology. For zebrafish to serve as a model organism for Alzheimer's research, it is essential to understand the normal role of age in cognitive function of zebrafish. To further advance this directive, we have generated baseline research that is focused on characterizing the learning and memory attributes of female zebrafish aged 4, 6, 8, 12, and 16 months. The groups were tested to assess associative learning and knowledge retention in response to specific stimuli in plus-shaped mazes in which a red cue card was either paired with an open gate allowing access to food, or a closed gate in which the fish could only smell the food. The amount of time fish spent in the open gate served as the measurement for learning and memory function. Interestingly, only the 8 month old fish displayed a significant learning and memory capacity. In contrast, while 12 month old fish displayed positive learning there was no evidence of memory retention when tested three days later. Swimming activity and swimming distance declined with age, suggesting that this particular maze may not be sufficient for assessing the cognitive function in these younger, more active fish.

Oral & Poster Presentation Abstracts

Mary Taglieri, Engineering - Chemical and Biological Engineering

Kyle Leonard, Engineering - Chemical and Biological Engineering

Kelley Cooper, A&S - Biological Sciences

Joseph Cooper, Engineering - Chemical and Biological Engineering

Faculty Mentor: Margaret Liu, Engineering - Chemical and Biological Engineering

Ningning Xu, Engineering - Chemical and Biological Engineering

Establish An Efficient CHO Platform For Antibody Productions

Chinese Hamster Ovary (CHO) cells are the most widely used expression systems for the recombinant therapeutic proteins due to their proper folding and post-translational modification capability, and their robust cell growth, even in large-scale bioreactors. In this study, an efficient CHO platform has been created to express antibody production. First, CHO host cells were successfully adapted from adherent culture to suspension culture, and afterwards from serum-dependent to serum-independent culture for improved growth and sustainability. Then, the DNA plasmids coding for the desired antibody proteins were designed and constructed. After transfecting the plasmid into the CHO cells, the genes of interest were amplified and the highest producing clones were chosen. Consequently, a high antibody production of 780 mg/ L was obtained in the batch CHO cell culture. In addition, the analytical methods, enzyme-linked immunosorbent assay (ELISA) and high performance liquid chromatography (HPLC), were also developed to quantitate recombinant monoclonal antibodies. The goal of this study is to create an efficient biological factory for producing anticancer therapeutic proteins, meeting the increased demand for mammalian cell-based biopharmaceuticals.

Oral & Poster Presentation Abstracts

Liam Finnegan, Engineering - Chemical and Biological Engineering

Katherine Beyer, A&S - Chemistry

Abbey Lauterbach, Engineering - Chemical and Biological Engineering
Lauterbach,

Faculty Mentor: Margaret Liu, Engineering - Chemical and Biological Engineering

Jianfa Ou, Engineering - Chemical and Biological Engineering

Butanol Fermentation from Biomass via a Cellulolytic Bacteria, Clostridium Cellulovorans-adhE2

The demand for alternative fuel sources, particularly biofuels, has skyrocketed in the past decade and must be addressed. Clostridium cellulovorans, an anaerobic, cellulolytic (carbon substrate-degrading) bacteria, is a promising host for the production of such biofuels via fermentation. In this study, we observed the production of butanol (the fermentation product with the highest energy value) by a mutant of C. cellulovorans grown on two carbon sources-cellulose and corn cob-in two vessels, a bioreactor and a set of serum bottles. Cellulose served as the control substrate to which corn cob-a cheap, renewable, and highly abundant carbon source-was compared. Butanol concentrations and optical densities were measured every 1-2 days using a spectrophotometer and high-performance liquid chromatography, respectively. The cells required a biomass adaptation period spanning a few generations before butanol production could proceed at an increasing rate. For example, for cells inoculated with corn cob, the initial butanol concentration was 0.306 g/L, and this value remained roughly the same after two days before jumping to 0.325 g/L within four days. Furthermore, this experiment clearly demonstrated that corn cob serves as a viable substrate for this fermentation-the maximum recorded butanol concentration for cells grown on corn cob within a four-day period was 0.325 g/L, whereas the maximum value for cells grown on cellulose under the same conditions/time parameters was 0.313 g/L.

Oral & Poster Presentation Abstracts

Caroline Huskin, Engineering - Chemical and Biological Engineering

Gabrielle Waller, Engineering - Chemical and Biological Engineering

Faculty Mentor: Margaret Liu, Engineering - Chemical and Biological Engineering

Jianfa Ou, Engineering - Chemical and Biological Engineering

Construction of Butanol Producing Mutant of Clostridium tyrobutyricum

Construction of Butanol Producing Mutant of Clostridium tyrobutyricum Caroline Huskin, Gabbie Waller Jianfa Ou, Dr. Margaret Liu As the slow decline of available fossil fuels become rising concerns, the energy industry has turned to biofuels. Butanol (a.k.s n-butanol) is compatible with engines currently designed for fossil fuels and has a high energy content, making it an ideal choice for biofuel production. However, due to the high cost of butanol production, ethanol and biodiesel are currently the biofuels of choice. Our research focuses on the anaerobic fermentation of the Clostridium tyrobutyricum bacterium and pronouncing the ald (aldehyde dehydrogenase) gene to get increased yield and productivity of butanol. The ald gene is assumed to have better performance compared to the previous method , adhE2 (alcohol dehydrogenase) gene. While the latter pathway can produce both butanol and ethanol, the ald pathway solely produces butanol. Escherichia coli acts as a carrier for the process of plasmid construction. The ald gene was amplified through PCR from Clostridium beijerinckii, then was inserted into the backbone through digestion, gel recovery, ligation, and transformation to create plasmid pMAD-ald. The constructed plasmid was confirm by sequencing. The next step is to transfer the constructed plasmid to C. tyrobutyricum, and test whether it is viable for butanol production. Key words: butanol, alanine dehydrogenase, Clostridium tyrobutyricum, plasmid construction

Oral & Poster Presentation Abstracts

Elizabeth Rowe, Engineering - Chemical and Biological Engineering
Faculty Mentor: Paul Rupar, A&S - Chemistry
Louis Reisman, A&S - Chemistry

PEI 3D Printing

Branched polyethyleneimine (bPEI) has a wide array of applications due to its high nitrogen content. This makes it useful for CO₂ capture, drug delivery, and many other uses. A previously unexplored use of PEI is in 3D printing. A common technique in 3D printing is to extrude a heated thermoplastic which upon cooling forms a ridged structure with shape retention. Since bPEI is a liquid at room temperature, it is not suitable for extrusion printing. Chemical crosslinking of bPEI does result in a ridged material and therefore we are exploring the crosslinking of bPEI as a technique to make it compatible with 3D printing.

Oral & Poster Presentation Abstracts

John Andrews, Engineering - Computer Science
Faculty Mentor: Preethi Nair, A&S - Physics and Astronomy

Applying General Pattern Recognition Software to Galaxy Image Classifications

Studying the diversity of galaxy shapes is a crucial tool in understanding the physics of galaxy formation. This research examines the potential of current pattern recognition techniques to automate the classification of galaxy shapes. In general, galaxies can be classified as ellipticals (football shaped), discs, and irregular galaxies, with many additional subcategories for each class. The most robust way to classify galaxies is by visual inspection. Unfortunately this process is very time consuming and is the limiting factor in studies of galaxy shapes. This limitation was recently overcome by a crowd sourcing project called Galaxy Zoo. With >150,000 volunteers, Galaxy Zoo was able to classify 300,000 galaxies from the Sloan Digital Sky Survey (SDSS) over 3 years (with multiple classifications per galaxy). While crowd sourcing was useful for SDSS it will not be a viable alternative for future surveys. For example, the Large Synoptic Survey Telescope (LSST), currently under construction in Chile, will take the equivalent of 8 years worth of SDSS data every single night. This volume of data (~10 billion galaxies) will not be classifiable on human time scales via crowd sourcing. It would take the Galaxy Zoo more than a millennium to classify the galaxies in LSST. As such, automated galaxy classification is crucial for future studies of galaxy formation. Here we present early work on a method to improve a public pattern recognition software called wndchrm.

Oral & Poster Presentation Abstracts

Clark Conway, Engineering - Civil, Construction and Environmental Engineering
Faculty Mentor: Rona Donahoe, A&S - Geological Sciences

Reclaimed Strip Mines on the Lake Harris and Lake Nicol Watersheds

Strip Mining has long been utilized as a method of surface mining, and involves excavating large quantities of earth and rock spoil to reach tabular deposits of mineral reserves, mainly coal. In Tuscaloosa County, Alabama, strip mining companies operated in the Lake Harris and Lake Nicol watersheds until 1976. At Lake Harris, the mine site was abandoned and the spoil left exposed to weathering reactions for a decade or more. Acid mine drainage is the main problem that affects watersheds near mining operations, and occurs when sulfide minerals exposed by mining undergo oxidation, releasing acid mine drainage to adjacent watersheds. The Lake Harris Stream site was reclaimed in 1986, using the limited resources available; the Cypress Creek site was reclaimed in the early 1990s, using more modern techniques. The goal of this study is to compare the effectiveness of the two reclamation projects through a combined field and laboratory project which evaluates the water quality in each stream. Water samples were collected from Lake Harris Stream and from Cypress Creek on January 30th and February 6th. The samples were analyzed using inductively-coupled plasma optical emission spectroscopy to obtain cation concentrations, and by ion chromatography to determine anion concentrations. The data for the Lake Harris Stream samples show significant water quality impairment, while the Cypress Creek samples are of much higher quality. Reasons for the contrast in water quality will be discussed.

Oral & Poster Presentation Abstracts

Blair Morrison, A&S - Biological Sciences
Faculty Mentor: Ryan Earley, A&S - Biological Sciences

*Does ocean acidification drive changes in the aggressive behavior of mangrove rivulus fish (*Kryptolebias marmoratus*)?*

Blair Morrison, Molly Cook & Ryan L. Earley Ocean acidification occurs when excess carbon dioxide in the atmosphere is sequestered in the ocean as carbonic acid, lowering its pH. Some studies have shown that ocean acidification significantly affects risk-taking behavior in reef fish in ways that increase the likelihood of predation. However, no studies have explored the effects of ocean acidification on other aspects of behavior. This experiment will monitor intraspecific aggression of the mangrove rivulus fish (*Kryptolebias marmoratus*) in response to acute exposure to ecologically relevant levels of ocean acidification. To test the effects of ocean acidification on behavior, individual aggression levels towards a standard stimulus (3-D printed models) will be quantified prior to being placed in a randomly selected pH treatment. Treatments include a control (pH=8.15), low acidification (8.0), and high acidification (7.8). After 4 hours of exposure, aggression will be quantified again. Based on known mechanisms indicating that acidification reverses inhibitory behavior patterns, we hypothesize that individuals in the high acidification treatment will display the most aggressive behaviors, whereas individuals in the control treatment will show the least. Individuals from the Gulf coast of Florida are expected to have a stronger behavioral response than individuals from the East coast of Florida because these areas vary considerably in their buffering capacity.

Oral & Poster Presentation Abstracts

Austin Brooks, A&S - Biological Sciences

Faculty Mentor: Ryan Earley, A&S - Biological Sciences

Elizabeth Johnson, A&S - Biological Sciences

The behavioral effects of endocrine disrupting compounds on mangrove rivulus fish.

Mangroves are home to many unique species, and many of these species are in danger of being adversely affected by effluents from numerous wastewater treatment plants located near the mangroves. These effluents contain many endocrine disrupting compounds (EDCs), such as ethinyl estradiol (EE2) and nonylphenol (NP). These EDCs cause a change in the synthesis of hormones, metabolism, and the homeostatic abilities of organisms that are exposed to them. EDC exposure can also alter the behavior of an organism, resulting in changes in aggression, risk taking and dominance hierarchies. The mangrove rivulus fish (*Kryptolebias marmoratus*) is an integral member of the mangrove ecosystem and have been considered a sentinel for the overall health of the mangroves. We hypothesized that exposure to an environmentally relevant dose of EE2 and NP would cause changes in behavior due to changes in neuroendocrine function caused by EDCs. We tested this by exposing adult fish to either a vehicle control or 4 ng/L EE2 or NP for 30 days followed by behavioral tests to measure exploration, aggression, and fear. Our preliminary results do not support our hypothesis that exposure to environmentally relevant doses of EE2 or NP will cause significant changes in behavior. However, our previous research indicates that exposure can alter endogenous hormones in adult fish, suggesting that exposed individuals are maintaining their behavior through some compensatory physiological mechanism.

Oral & Poster Presentation Abstracts

Alan Burdick, Nursing - Capstone College of Nursing
Faculty Mentor: Ryan Earley, A&S - Biological Sciences
Grace Scarsella, A&S - Biological Sciences

Does temperature induce sex change in a hermaphroditic fish?

Charnov's theory of sex allocation states that, as body size increases, the fitness of one sex (e.g., male) increases relative to the other sex (e.g., female), leading to the prediction that sexually plastic animals should transition between the sexes at a particular size. However, many factors other than body size trigger sex change. Many of these factors relate to changes in metabolic rate. This led us to explore whether metabolic demand might be an important mechanism driving sex change. Mangrove rivulus fish (*Kryptolebias marmoratus*) exist as self-fertilizing hermaphrodites that can undergo temperature-dependent sex change, becoming functionally male when temperatures exceed 28°C. As temperature increases, metabolic demand increases. We hypothesize that as temperature increases, it becomes difficult to maintain ovarian tissue because it can be three orders of magnitude more costly than testicular tissue. We also hypothesize that fish in hotter temperatures will undergo sex change at higher rates compared to controls. To test this, we maintained fish at three different temperatures and measured metabolic rates at specific intervals over varying exposure periods, either one week, two weeks, or one month. At the end of the experiment, we extracted gonads to definitively determine sex, and livers to obtain a measure of body condition. This study will identify whether metabolic demand is an important physiological mechanism underlying environmentally-triggered sex change.

Oral & Poster Presentation Abstracts

Keaton Drees, Nursing - Capstone College of Nursing
Faculty Mentor: Safiya George, Nursing - Capstone College of Nursing

Finding the Correlation Between Drug Use and Sexual Risk Behavior in the U.S. Virgin Islands
Finding the Correlation Between Drug Use and Sexual Risk Behavior in the U.S. Virgin Islands This study, a cross sectional secondary analysis, is designed to examine the association between drug use and sexual risk behaviors in people living with HIV or AIDS (PLWH) and community members in the US Virgin Islands (USVI) and differences between groups. For the past decade, the USVI has consistently had the highest prevalence rates of adults and adolescents (per capita) living with a diagnosis of HIV infection of AIDS in the US. However, only a handful of studies have been published about HIV/AIDS in the USVI. To add to this, the USVI is considered a geographic hot spot for increased HIV risk. The sample from this secondary analysis includes 7 people living with HIV or AIDS in the USVI, and 45 community members in the US Virgin Islands, who voluntarily participated in individual interviews and completed computerized surveys. Sexual risk behavior includes such concepts as unprotected sex, sex with unknown/multiple partners, and unknown HIV status. This was measured by the AIDS Risk Behavior Assessment. Participants also completed an HIV knowledge test. Data will be analyzed using descriptive statistics, correlations, independent sample T-test and regression. Preliminary results showed a positive correlation between drug use and sexual risk behaviors.

Oral & Poster Presentation Abstracts

Christopher Roper, Engineering - Metallurgical and Materials Engineering
Faculty Mentor: Subhadra Gupta, Engineering - Metallurgical and Materials Engineering
Billy Clark, Engineering - Electrical and Computer Engineering

Improvements for STT-RAM

Magnetic Tunnel Junctions (MTJ) have been studied intensively since the 1990's, but new research aims to use these devices in next-generation nonvolatile RAM called Spin Torque Transfer Random Access Memory (STT-RAM). These junctions are made of three layers: the pinned, barrier, and free layers and they work by leveraging the Tunneling Magnetoresistance (TMR) effect. TMR occurs when two ferromagnetic layers separated by a thin insulating barrier have parallel magnetic orientations that exhibit a lower resistance than when they are in an anti-parallel orientation. Computers can encode these high and low resistances as zeros and ones. To work properly for this application these MTJ's need a low critical current, high thermal stability, strong perpendicular magnetic anisotropy, and large resistance changes. We varied the seed layer thickness beneath the free layer to examine its effects on the switching behavior. To achieve this we patterned these MTJ's into devices in the MFF cleanroom while testing was carried out on the MINT Center's DynaCool PPMS.

Oral & Poster Presentation Abstracts

Sydney Ezelle, Engineering - Civil, Construction and Environmental Engineering

Faculty Mentor: Wei Song, Engineering - Civil, Construction and Environmental Engineering

Blair Butler, Engineering - Civil, Construction and Environmental Engineering

Displacement of a System

The purpose of this experiment is to use manmade cables connected to an accelerometer to approximate the displacement of the system. For this experiment, we also test our manmade cables and determine the proportional constants (sensitivities) of the LVDT and accelerometer. The use of the accelerometer and LVDT data is to measure displacement of a system in motion. Using the cables we made, the displacement of the system can be used to determine the safety and proper construction of a system. Measuring displacement is a commonly used method to determine the safest and most efficient infrastructure. The design of this experiment involves the cables traveling from the accelerometer and the LVDT to the sensors that are placed on the structure positioned on the shake table. The shake table simulates natural disasters, such as an earthquake. Because of these simulations, we can determine a structure's ability to be a safe environment in case of emergencies. Once we find the measurements of displacement, we can approve of the infrastructure of the system or change the production for a safer structure.

Oral & Poster Presentation Abstracts

Caroline Prichard, School of Social Work
Faculty Mentor: Brenda Smith, School of Social Work

How realistic are "realistic job previews" in child welfare? Implications for employee retention and turnover
Realistic job preview videos portraying the positive and negative aspects of the work environment are provided to potential employees of child welfare agencies as a way to promote job retention. This research used open and axial coding of videos from across the United States to compare the content of Realistic Job Previews to studies of child welfare retention and turnover. Results indicate that the videos focused on challenges in work with families, but the research focused on challenges within bureaucratic child welfare organizations. While applicable to other environments, this research is particularly important concerning work with children, as stability and trust are vital to the success of a child involved with the system- both of which are lost in high employee turnover.

Oral & Poster Presentation Abstracts

Manoj Sunny, C&BA - Economics, Finance and Legal Studies

Faculty Mentor: Paul Drnevich, C&BA - Management and Marketing

Collin Gilstrap, C&BA - Economics, Finance and Legal Studies

M&A Premiums Comparison: Same Industry vs Cross Industry Analysis

Mergers and acquisitions (M&A) are prominent activities in business practice, and are essential tactics for companies to expand their scale or scope or as an exit strategy or opportunity to have their tangible and intangible resources repurposed and utilized more effectively. Such M&A activities have been an increasingly popular practice since the 1980's. However, despite the popularity of the activity and a fairly extensive body of related research, the ability to forecast and determine the future financial health of the parties involved has been elusive. The purpose of this research is to ascertain whether there is a difference in the market's reaction towards news of acquisitions within the same industry or cross industry. For the purpose of this paper, we define the market as individual investors who purchase assets of the observed companies. Our hypothesis is that there will be a clear distinction between the market's reaction towards acquisitions within the same industry vs cross industry, but more specifically, there will be a greater premium for deals within the same industry. This belief is based on the assumption that investors value deals where the target wields similar core competencies as the acquiror.

Oral & Poster Presentation Abstracts

Matthew Hall, C&BA - Information Systems, Statistics and Management Science

Faculty Mentor: James Cochran, C&BA - Information Systems, Statistics and Management Science

MLB Pitcher Performance on Balls in Play

McCracken argued for judging pitchers by homeruns, strikeouts, and walks surrendered, contending these are the only outcomes they control. He found batting average on balls put in play (BABIP) fluctuates randomly across seasons and pitchers. We extend McCracken's work by examining first order autocorrelation in seasonal slugging percentage on balls in play allowed by a pitcher (DISP). Data for pitchers who have pitched at least 160 innings in five or more seasons since 1999 were collected from MLB.com. Runs charts of DISP by season for each pitcher were created and suggest that DISP for a pitcher varies randomly from across year and DISP varies randomly across pitchers. We calculated first order autocorrelation of DISP and the associated p-value for each pitcher, and then executed a c2 test on the p-values to assess if they are uniformly distributed. Results suggest DISP does not vary across season for pitchers. We use ANOVA to test equality of mean BABIP and DISP across pitchers and seasons. The p-values are significant, suggesting the means are not equal across seasons and pitchers. Because of the intercorrelation of BABIP and DISP, we will next perform multivariate ANOVA on these statistics. To assess the relationship of pitcher with DISP and BABIP, we stratify our data by type of pitcher (control versus power, ground ball versus fly ball, etc.) to evaluate the equality of means across type of pitcher.

Oral & Poster Presentation Abstracts

Rebecca Fleisig, C&BA - Management and Marketing

Faculty Mentor: Regina Lewis, C&IS - Advertising and Public Relations

Susan Fant, C&BA - Management and Marketing

Lindsay Sutton, C&IS - Advertising and Public Relations

Millennials' Expectations About Their Work Lives in 2025

Over the past year I have worked with professors in both the business and communications schools as well as a principal at Intermark Group to learn more about millennial views about their futures. While the larger project included ten topic areas, this presentation will focus on the millennials expectations of their future careers. The results that I will be sharing in my Emerging Scholar presentation will be three-fold. I will be sharing information from a survey of undergraduates that focused on their career expectations for the year 2025. This survey included both closed and open ended questions such as how likely participants believe they will be working alongside robots, how many hours a day they expect to spend on a computer or mobile device, and how they will primarily measure success in their career in the year 2025 along with many other types of questions. Results across many different types of questions will be shared with the audience. In addition to results from our Imagen Y survey, results from follow-up qualitative work also will be shared, as the research team will be conducting focus groups and one-on-ones among participants who provided provocative answers to the survey. This presentation will contain many direct quotes and ideas from participants who shared their thoughts both online and face-to-face.

Oral & Poster Presentation Abstracts

Larissa Magera, C&IS - Advertising and Public Relations

Faculty Mentor: Regina Lewis, C&IS - Advertising and Public Relations

"A Further Look into the Positive and Negative Effects of being Connected 24/7"

Because mobile technology plays such a large role in their lives, digital natives are often described as having positive, effortless relationships with these technologies, according to an Adweek article entitled "Survey: 90% of Millennials Believe Technology Creates More Opportunity." However, a previous study conducted by Dr. Regina Lewis titled "Digital Women Around the World: An Exploration of Their Attitudes Toward the Mobile Life" found that digital natives "viewed digital media to be a greater source of stress than did their older counterparts." The current study, then, seeks to expand upon Lewis's findings by asking female students at The University of Alabama to reflect upon their relationships with their mobile devices. A minimum of 250 members were recruited from the College of Communication and Information Science's research participant pool. The survey included many of Lewis's original items but also added new questions regarding the role of mobile technology in their lives and their attitudes toward their mobile devices. Once data collection is complete, a quantitative analysis will be conducted in order to discover whether participants share the same sentiments as the digital natives in Lewis's study, as well as to uncover the factors that cause women to view their mobile technology the way they do. Through this comparison, the study seeks to provide a more accurate description of the attitudes of digital natives with regard to their mobile technologies.

Oral & Poster Presentation Abstracts

Lauren Crawford, C&BA - Economics, Finance and Legal Studies
Faculty Mentor: Robert Reed, C&BA - Economics, Finance and Legal Studies

The Causes and Consequences of Bank Failures in Canada

In the wake of the 2008 financial crisis, many observers have become concerned about the effects of failures of institutions in the banking system. While there has been work focused on this issue in the U.S., little is known about the fragility of the banking system in other countries. For example, what economic conditions tend to induce failures across countries? This study attempts to address these important matters by studying the causes and consequences of bank failures in Canada. In contrast to the FDIC in the United States, the size of each failure is not publicly available. However, there is some information about the magnitude and timing of each failure in the Annual Reports of the Canadian Deposit Insurance Corporation. By gathering information from the Annual Reports from CDIC and consulting with CDIC staff members, we produced the first data set detailing the magnitude and timing of failures in Canada since 1967. We augment this data with various measures of banking system activity and macroeconomic performance such as the unemployment rate and industrial production. Our project thus performs two important sets of regression analysis. What conditions are associated with fragility in the banking system? How does the failure of an institution affect activity across the whole banking system? Addressing these questions will provide valuable guidance for banking regulators and policymakers across the globe in developing policy to address fragility of the banking system.

Oral & Poster Presentation Abstracts

Allie Bartholomew, C&BA - Culverhouse School of Accountancy

Faculty Mentor: Todd DeZoort, C&BA - Culverhouse School of Accountancy

The Use of a Student Whistleblower Policy in Higher Education to Manage Academic Misconduct

This study examines the role of the implementation of a "whistle blower" anti-cheating policy in reducing academic misconduct at the higher education level. In this research several different treatments were given to University of Alabama students; one group given a whistle blower policy, one given a generic academic misconduct policy, and one given no policy at all before given a series of questions on how they would react in situations in which one of their peers was cheating. In addition, students were given an assessment on their moral development via an abbreviated version of the DIT2.

Oral & Poster Presentation Abstracts

Stephanie Register, HES - Human Nutrition and Hospitality Management

Faculty Mentor: Amy Ellis, HES - Human Nutrition and Hospitality Management

Weight Gain in College Female Students: A Literature Review

Introduction: Weight gain is common among females during college. Many college students try to lose weight with unhealthy practices. Purpose: The purpose of this review is to evaluate evidence related to dieting among collegiate women and to determine key causes for college weight gain. Methods: Seven relevant articles from peer-reviewed journals were identified using PubMed. Search terms included college women, weight gain, and dieting. Results: Female students who were overweight/obese had higher stress levels, more depressive symptoms, and more social anxiety disorders than those with a normal weight. Increase in weight and shape concerns were also associated with overeating. College women generally overestimated their BMI when asked, and a majority of women who reported trying to lose weight had normal BMIs. The most common unhealthy weight loss practices included eating very little and skipping meals. Conclusion: Higher stress levels and depressive symptoms are associated with weight gain during college. Even though some women do gain weight in college, studies show that many who have healthy BMIs try to lose weight by restricting food and/or consider themselves overweight. Also, even though some students entering college with a normal BMI became overweight or obese, most with a normal BMI either stayed normal or lost the gained weight, while students entering college with a BMI in the category of overweight or obese remained overweight or obese.

Oral & Poster Presentation Abstracts

Mallory Connolly, Nursing - Capstone College of Nursing
Faculty Mentor: Andrea Cevasco-Trotter, A&S - Music

Stress responses of ELBW premature infants: An analysis of responses during music and multimodal stimulation sessions

When infants are born prematurely, they undergo many weeks of life saving medical procedures by doctors and nurses. The infants have equipment attached to their bodies, including devices needed for respiratory assistance, feeding, and monitoring the infants' vital signs. This is extremely uncomfortable for a baby. Infants are overstimulated to the noise and alarms of the NICU and have a hard time adapting outside of their mother's womb; however, intervention can ameliorate effects of preterm birth and developmentally appropriate stimulation is one form of early intervention. Auditory, tactile, visual, and vestibular stimulation (ATVV) is a common practice used in the NICU that helps benefit the wellbeing of preterm infants. ATVV can also be paired with music. Music therapy researchers refer to it as MMS (music and multimodal stimulation), and researchers have found that premature infants who receive it leave the hospital up to 14 days earlier. Low birthweight infants (< 1200 grams and more than 10 weeks premature at birth) at DCH Regional and Northport Medical Center received MMS at 30-32 weeks post-corrected age. These infants are smaller and younger than the premature infants used in many similar studies. The purpose of this study is to examine the effects of MMS across multiple sessions on stress responses of these low birthweight infants.

Oral & Poster Presentation Abstracts

Ramie Ruble, Nursing - Capstone College of Nursing
Faculty Mentor: Alexa Tullett, A&S - Psychology

Analysis of Personality Traits and Political Ideology

In politics, there has always been conflict when it comes to resolving issues in a way that makes all involved satisfied with the outcome. Many of these differences can be contributed to fundamental distinctions in our personality types. Various researchers have offered in-depth analyses of why humans do what they do, but they have not measured the correlation of why people with certain, similar personality traits agree on some issues, and disagree with others who do not exhibit those traits to the same extent. During our research, we analyzed the correlation of certain personality factors with views on specific issues, and how those viewpoints translate to an ideology represented in today's political party system. Using data collected from students at The University of Alabama and The University of California Berkley on a political ideology survey, we studied the correlations of ideology and personality to prove that there was a positive relationship between specific traits and views on certain issues. Using the evidence collected, we suspect that we will gain more insight as to why humans act the way they do, as well as be able to predict a person's political affiliation based on personality.

Oral & Poster Presentation Abstracts

Cara Bolt, C&IS - Advertising and Public Relations
Faculty Mentor: Chris Roberts, C&IS - Journalism

How News-Mediated Evidence is Used and Misused in Presidential Campaign Ads

According to "The Functional Theory of Political Campaign of Political Discourse" (Benoit, 1999), campaigns create messages that attack, acclaim, and defend in regards to policy or character. To add credibility to those claims, political advertisements use news-mediated evidence. Journalism associate professor Dr. Chris Roberts, a doctoral student, and an undergraduate student investigated these research questions: Do campaigns distort the original purpose of news evidence for their own ends? And if so, what sort of distortions do they use? Researchers coded 174 pieces of news-mediated evidence used in 105 spots selected randomly from the 2008 and 2012 presidential campaign, noting their discourse purpose and comparing the original news-mediated evidence to the ad's use. If the ad's use did not match the evidence's original purpose, coders noted the difference with the following terms: a headline different from the original content, and inferring opinion as fact. Results showed that 25.9% of all news-mediated evidence was misused. Attacks accounted for 93.3% of misuse, and misuse for policy (91.5%). Combined, 42 of 45 pieces of misused evidence was to attack a candidate on a policy issue. The most common category of misuse was information taken out of context (16.1%), followed by a different headline (10.3%), and omitted information (9.8%). Benoit, W. L. (1999). Seeing spots: A functional analysis of presidential television advertisement, 1952-1996. New York: Praeger.

Oral & Poster Presentation Abstracts

Isabelle Beauregard, A&S - Gender and Race Studies
Faculty Mentor: Dana Patton, A&S - Political Science

Paid Parental Leave Policies and Their Effects on Infant Mortality Rates

Over the course of the past sixty years, many countries throughout the world have adopted maternity, paternity, and/or parental leave policies. Although these leave policies can vary widely, the majority of the world has implemented some form of leave, and many have chosen to implement paid maternity, paternity, and/or parental leave. In this study, the maternal, parental, and paternal leave policies of the United States of America will be compared to those of Germany, the countries in the Organization for Economic Co-operation and Development, and the world in order to demonstrate that the lack of a comprehensive policy in the United States of America is an outlier. We also utilize a quantitative analysis, examining paid parental leave and infant mortality rates. The purpose of this study is to add to the growing body of evidence that suggests that paid leave policies positively affect the wellbeing of families, mothers, and children, and to therefore continue to press the United States of America's government to institute paid maternity, paternity, and/or parental leave. This study is important in that it shows some of the benefits to the adoption of comprehensive leave policies. Our study is also timely, as paid parental leave is a current topic of conversation during presidential nominee debates.

Oral & Poster Presentation Abstracts

Kynnedi Fye, A&S - Criminal Justice

Faculty Mentor: Darrin Griffin, C&IS - Communication Studies

Cyber Terrorism and Educational Institutions: Examining Resiliency Against Threats

Cyber Terrorism and Educational Institutions: Examining Resiliency Against Threats Kynnedi Fye, Emerging Scholar Undergraduate Researcher Dr. Darrin Griffin, Assistant Professor, Faculty Advisor The number of terrorist threats issued through cyber outlets seems to have increased dramatically due to society's dependency on social media and electronic communications. Numerous cyber threats are issued against students and faculties attending high schools and universities, requiring institutions to prepare protocols for an active shooter, a bomb threat, or other threats of violence. Students and faculty look to administrations, but contradictory messages often exacerbate the situation. This study explores how cyber terrorism threats influence the functions of educational institutions. We also endeavor to supply schools with appropriate responses to cyber threats to reduce public fear and assist investigative authorities. A list was constructed of institutions via internet searches who were subjects of cyber threats. Select case studies were chosen after data available from sources on the threat and the schools' reactions (e.g. social media, news media, law enforcement press releases, etc.) were explored. The examination of cyber terrorism's influence on educational institutions substantiates the need for standardized procedures. Our research aims to propose protocols for schools to follow in cases of cyber threats.

Oral & Poster Presentation Abstracts

Andrew Laningham, C&IS - Communication Studies

Faculty Mentor: Darrin Griffin, C&IS - Communication Studies

There's No Such Thing as A Free Lunch; Using a Grounded Theory Approach to Understand Perceptions of a Hypothetical Food Honor System

This study examined students' perceptions towards a hypothetical food honor system for making purchases in an academic building on a college campus. The authors took a grounded theory approach to this study. The inquiry was guided by five open-ended questions concerning whether students prefer, would use, and might be dishonest in their use of a food honor system. The authors then categorized the responses by using an axial coding technique. Results indicate that the majority of students were initially excited about the proposition of a food honor system. They expressed excitement about the proposition of another food establishment. However, students also articulated many disadvantages and limitations of the food honor system, such as possibility of theft and the financial difficulties such a system could present to the University. Overall, there was a generally positive reaction to this system based on its convenience and proposed location. Limitations and future directions are discussed.

Oral & Poster Presentation Abstracts

Emily Goldstein, HES - Human Development and Family Studies

Natalie Valentine, HES - Human Development and Family Studies

Faculty Mentor: Dr. Sherwood Burns-Nader, HES - Human Development and Family Studies

Looking Into the Daily Life of Parents of Pediatric Cancer Patients

The whole family is impacted with a childhood diagnosis of cancer. Parent's stress caring for their ill children and managing home and work can lead to anxiety that negatively affects both parents and their children. Previous studies have interviewed or assessed them at diagnoses, during treatment, or after discharge in order to gain an understanding of parents of pediatric cancer patients' anxiety and coping. However, a gap in the literature exists for examining the daily experience of parents of pediatric cancer patients and how that relates to their coping and satisfaction. This ongoing study uses a daily reflection questionnaire to examine struggles and successes in relation to coping and satisfaction with the care received. Sixty parents of newly diagnosed cancer patients will complete a demographic questionnaire, a coping inventory, and a daily reflection questionnaire. The daily reflection questionnaire will be completed for 7 days and will examine the parents' daily experiences with having a child with cancer. The following results are expected 1) parents who experience greater number of daily stressors will report less daily coping and satisfaction and 2) parents who experience a greater number of daily successes will report more daily coping and satisfaction. Results of the study would expand the literature on parental coping with pediatric cancer.

Oral & Poster Presentation Abstracts

Madison Redmill, A&S - Mathematics

Courtney Charland, C&BA - Information Systems, Statistics and Management Science

Faculty Mentor: Emmett Lodree, C&BA - Information Systems, Statistics and Management Science

THE EFFECT OF INCENTIVES AND TRANSACTION COSTS ON DONATION DRIVES

When reviewing the statistical trends of donation drives, an exponential growth rate was found that creates numerous logistical issues of predictability and overall efficiency such as limited resources, the tendency of donors to procrastinate until the deadline, and the inability to account for all received donations. This research proposal aims to alleviate these problems by leveling the donation rate through the simultaneous use of weekly incentives and limiting of transaction costs. Transaction costs refer to a "cost" or sacrifice incurred in order to better the economic exchange process. If new incentives to donate were advertised weekly, would the donation rate level out and bring a more predictable rate of donations? Our preliminary findings show that if the value of incentives decreased throughout a donation drive, there would be an additional increase in donations at the beginning of the donation drive that would allow for an increase in total donations received. In order to keep donation logistics at a manageable level, we would limit transaction costs to make donating more convenient for students; the incentives as well as method of accounting for donations would be provided at a predetermined centralized location. These incentives and a more convenient location encourage people to donate much sooner, therefore simultaneously leveling the donation rate and alleviating logistical problems.

Oral & Poster Presentation Abstracts

Stephanie Mackenzie, A&S - Psychology

Faculty Mentor: James Hamilton, A&S - Psychology

The Prevalence and Correlates of Excessive Medical Illness Behavior: A Study of Collateral Sources

Dramatic cases of people who have falsely pretended to be medically ill leave no doubt that medical deception occurs. However, because of strong social proscriptions against pretending to be ill, it is difficult to study the problem scientifically using methods that rely on the honesty of people who enact these deceptions. In this study we attempted to solve this problem by relying on collateral sources (friends and relatives) to report on exaggerated or false medical problems in medically ill friends and relatives. Participants began the survey by identifying a friend or relative with a chronic or complex medical problem (index patient) - no mention was made about medical deception at the time they selected a index patient on whom to report. After collecting information about the index's medical problems and personality judgments about the index, participants were asked whether they believed that the index patient exaggerates, lies, or intentionally simulates their medical problems. Participants identified index patients with whom they were quite close ($M=7.8$, $\max = 10$), and who were significantly ill (Day of Hospitalization in the past year, $M=44$). Nearly 40% of participants suspected that the index patient was lying, simulating or inducing their own medical problems, and approximately 10% of participants were highly certain of this. Personality correlates of these suspicions were consistent with clinical anecdotes linking medical deception to personality problems.

Oral & Poster Presentation Abstracts

Kathryn Fritz, A&S - Chemistry

Faculty Mentor: JoAnn Oliver, Nursing - Capstone College of Nursing

Lymphedema in Breast Cancer Patients: Identifying the Gap from the Literature

As the mortality rates of breast cancer decreases, there has been an increase in breast cancer survivorship issues. One in particular that decreases quality of life dramatically is Breast Cancer-Related Lymphedema (BCRL). Primary symptoms of BCRL include discomfort, pain, swelling and tenderness, and lack of mobility. A common secondary symptom of BCRL is infections, such as cellulitis. Irreversible, BCRL complications often reach unnecessarily severe levels. Perhaps perpetuated by an absence of evidence based guidelines in treatment and education of patients, there may be a lack of communication to patients about lymphedema risk factors, signs and symptoms, prevention, and management. Further, a review of the literature has provided evidence of an overwhelmingly unaddressed knowledge gap. This is significant, since prevention is a key in regards to BCRL. Addressing the BCRL knowledge gap could minimize the occurrence of BCRL and increase the rate of early detection, leading to improved quality of life for breast cancer survivors. Therefore, our goal in this project is to use the literature to address the following questions: What is causing the knowledge gap? What strategies could be used to help increase patient knowledge about BCRL?

Oral & Poster Presentation Abstracts

Justin Chambers, C&BA - Information Systems, Statistics and Management Science

Anna Claire Smith, C&BA - Information Systems, Statistics and Management Science

Faculty Mentor: Jeff Lucas, C&BA - Information Systems, Statistics and Management Science

Uzma Raja, C&BA - Information Systems, Statistics and Management Science

Adoption of New Technology Platform: A Life Cycle

Given the rapid pace of technology innovations, organizations are battling the challenges of when and how to transition to new technological platforms. The increased need for analyzing large scale data is an added constraint that requires existing analytical platforms to either scale to the processing needs or be replaced by new and more effective solutions. In this research we examine the process of new technology platform adoption. The process of instituting a new technical platform is complex, expensive, all-embracing processes, resource extensive, and has far-reaching implications on the business as a whole in the present and for the future. If not done correctly, this undertaking could cause important time and money to be devastatingly lost. In this research, we present the process businesses should follow when deciding on the organizational need to introduce a new technical platform. To test this process, we looked at the organizational need to replace the bulky SAS organizational code base with a different, more efficient code. We then took on the project of building a translator to convert SAS code into R Open Source Code, and identified the challenges and implications of each step in our process. Through our analysis and testing, we found the process to be successful and suitable, and is able and should be applied to any organizational adoption of any new technical platform.

Oral & Poster Presentation Abstracts

Emily Stebbins, A&S - Psychology

Faculty Mentor: Lance Kinney, C&IS - Advertising and Public Relations

The Cosmo Girl: Who is the "Fun, Fearless Female?"

Abstract The Cosmo Girl: Who is the "Fun, Fearless Female?" Emily Stebbins Advisor: Lance Kinney, Ph.D. Advertising & Public Relations College of Communication & Information Sciences Cosmopolitan, colloquially known as Cosmo, began publication in 1886 as a family interest magazine, later morphing into a literary magazine. Cosmo was repositioned into a sexy, stylish women's magazine in 1965 when Helen Gurley Brown assumed duties as editor in chief. Brown edited Cosmo until 1997. Three more editors in chief have followed, including the current editor, Joanna Coles. Cosmo's 2016 media kit notes a number of international editions published in several languages. The U.S. edition is read by an average of 5.24 million women each month, most of them 18-34 years old. Cosmo's defining feature has been its cover, often featuring a trendy, attractive, young female. An sizable body of academic research indicates that the predominant female images observed in magazines are often discrepant from more typical female body shapes, ages, weights, etc. This research content analyzed American edition Cosmo covers in order to observe the most frequently occurring cover images viewed by the millions of females reading Cosmo. How is Cosmo's "fun, fearless, female," represented on the magazine's cover?

Oral & Poster Presentation Abstracts

Rachael Drake, Nursing - Capstone College of Nursing
Faculty Mentor: Kristina McDonald, A&S - Psychology
Callie Gibson, A&S - Psychology

Empathy for Rejected Others: The Moderating Role of Rejection Sensitivity

Past research has shown people show empathy towards others with whom they identify, but does this translate to rejection, which has been shown to increase the rate of negative interpersonal behaviors? Furthermore, there is likely individual variability in responses to rejection. The current study examined how rejection sensitivity and situational rejection would predict empathy for a rejected other. Participants (n=217) were randomly assigned to play Cyberball and either be included or excluded from the online game of catch. They also watched a person excluded from Cyberball. Prior to playing, participants completed the Rejection Sensitivity Questionnaire. After playing, they completed the Profile of Mood States. After watching the Cyberball rejection, participants completed an empathy measure. Results indicated no direct effect of rejection on empathic concern. However, condition interacted with rejection sensitivity to predict negative mood, which mediated the relationship with empathic concern. Participants who were more rejection sensitive and were rejected in Cyberball were more angry and sad after their own experience of rejection, which increased their empathy for the rejected other. These results suggest that rejection sensitivity may enhance the identification process after rejection. In sum, the current research suggests that rejected individuals who are rejection sensitive are more upset after rejection, which enhances their concern for rejected others.

Oral & Poster Presentation Abstracts

Tristan Ponder, A&S - Music

Faculty Mentor: Kristen Warner, C&IS - Telecommunication and Film

Nicki Minaj: The Black Barbie

Nicki Minaj is a very playful character when it comes her to appearance. Nicki presents herself as the "Harajuku Barbie." In my research, I am analyzing how Nicki's portrayal of the "Harajuku Barbie" influences women to be confident in who they are and help shape women's ideas on femininity, empowerment, and overall individuality through her music, her videos, and her appearance overtime. I have recorded my findings through analyzing her music (specifically lyrics), her music video stills, and her appearances during interviews and award shows.

Oral & Poster Presentation Abstracts

Alexandra Gary, HES - Health Science
Faculty Mentor: Lori Turner, HES - Health Science
Megan Schewmake,

Beliefs, Use and Misuse of Psychiatric Medications among College Students

Studies show an increase of use and misuse of psychiatric medications, especially on college campuses. One study showed that college students who were seen at a university counseling center increased between 1988 and 2001 from 10% to 25% and another showed an increase between 1985 and 2002 from 3% to 23%. Because young adults are highly susceptible to mental disorders and about half of college-aged young adults have already been diagnosed with some type of mental disorder, it's necessary to examine their interaction with psychiatric medications. Stimulants are the most common documented medication abused by college students. Stimulant prescriptions have heavily increased over the past 20 years, with college stimulant abuse rates ranging from 5% to 35%. Misusers of stimulants (65%) often report that their first incident of misuse took place during college. Benzodiazepines are also misused due to its hypnotic and euphoric effects. Students often site their use of benzodiazepines for sleep and relaxation. Studies from 2001-2002 show an increase of misuse from 4.5% to 5.1%, with others showing 7.8% of students have used benzodiazepines in their lifetime. Although not as highly abused as other psychiatric medications, antidepressants are misused in order to correct minor symptoms such as anxiety and obsessive thoughts, as well as to obtain an academic advantage. The purpose of this study is to assess the beliefs and behaviors of three psychiatric medications in college students.

Oral & Poster Presentation Abstracts

Elizabeth Elkin, C&IS - Journalism

Brian Roberts, A&S - Biological Sciences

Faculty Mentor: Scott Parrott, C&IS - Journalism

Anna Rae Gwarjanski, C&IS - Journalism

Gender in Politics: How current events affect perceptions of gender in politics

This research project analyzes how current events in the news may shape how voters view and vote on candidates based on gender. We hypothesized that when traditionally female political issues are in the news, voters support female candidates, and that when traditionally male political issues are in the news, voters support male candidates. "Female" political issues include topics such as education and public health. "Male" political issues include topics such as national defense. Informed by agenda setting theory, we primed participants with either "male" or "female" political issues by asking them to rate the readability of Tweets concerning either (a) homeland security or (b) education. Participants indicated what they thought was the most important issue facing the nation. We expected they would report the issue they saw in the Tweets. We exposed participants to brief biographies and photographs of male and female political candidates. They indicated if they felt the candidates could handle the issues facing our country. We hypothesized that participants primed with "female" Tweets would want to vote for female candidates, while participants primed with "male" Tweets would want to vote for male candidates. Results did not support agenda setting, probably because of real-world news coverage of the ISIS attacks in Paris, which led most participants to rate homeland security as most important. The data showed that participants preferred male candidates over female candidates.

Oral & Poster Presentation Abstracts

Brian Roberts, A&S - Biological Sciences

Elizabeth Elkin, C&IS - Journalism

Faculty Mentor: Scott Parrott, C&IS - Journalism

Anna Gwarjanski, C&IS - Journalism

News Coverage of Schizophrenia

Schizophrenia is a serious mental illness that distorts an individual's perception of reality and can lead to distress and erratic behavior. A large social stigma comes with the diagnosis of this illness, including an association between schizophrenia and violent behavior. Our study, a quantitative content analysis, investigated eight major news outlets to examine if mainstream media helps instigate our society's belief that those with schizophrenia are violent individuals. Our research focuses on traditional news sites such as the Los Angeles Times and "digital native" websites such as Vice. It was hypothesized that traditional media would show schizophrenia as a violent disorder, and new media outlets would show a more positive view of schizophrenia by interviewing people affected by the illness. Our research team examined news stories from 2015 that were randomly selected from 8 websites regularly read by millions of people. Coders noted if a story mentioned schizophrenia using positive or negative terms, and whether the individual with schizophrenia committed or fell victim to violence and/or crime. Coders documented the type sources quoted in each article. The comments below each story were also recorded and examined. While data analysis is ongoing, early results suggest both media types often focus on violence and schizophrenia.

Oral & Poster Presentation Abstracts

Megan Anderson, C&BA - Economics, Finance and Legal Studies

Victoria Morgan, A&S - New College

Faculty Mentor: Philip Gable, A&S - Psychology

Hunter Threadgill, A&S - Psychology

Did Pixar Get It Right?: The Influence of Disgust, Anger, and Sadness on Memory

Emotion shapes and colors our memory. But does emotion influence what we remember? The motivational intensity model posits that emotions low in motivational intensity broaden cognitive scope, but emotions high in motivational intensity narrow cognitive scope. Based off this model, negative emotions low in motivational intensity (sadness) should enhance memory for peripheral items, whereas negative emotions high in motivational intensity (disgust, anger) should enhance memory for central items. The present experiments examined the way negative emotions ranging from high to low in motivational intensity influence memory for centrally and peripherally presented information. Experiments 1 and 2 demonstrated that negative affects high in motivational intensity (Exp 1: Anger; Exp 2: Disgust) enhance memory for centrally presented information relative to a neutral condition. Experiment 3, however, revealed that negative affect low in motivational intensity (i.e., sadness) enhance memory for peripherally presented information, relative to a neutral condition. Together, these results suggest that motivational intensity, rather than valence or direction, causes broadening and narrowing of what we remember. Megan Anderson, Victoria Morgan, Hunter Threadgill, Philip Gable

Oral & Poster Presentation Abstracts

Claire Parker, Engineering - Electrical and Computer Engineering
Faculty Mentor: Paul Puzinauskas, Engineering - Mechanical Engineering
Kaylie Crosby, Engineering - Mechanical Engineering

Implementation of Onboarding Procedure Will Lead to Increase in Team Motivation and Involvement
The study assesses the motivational aspects of a project as they pertain to onboarding procedures and team involvement. The University of Alabama EcoCAR 3 Team will serve as a test subject by implementing an onboarding procedure developed from results of previous studies and EcoCAR 3 Teams at other universities. For the purpose of this study, onboarding is defined as the process through which new team members receive the necessary knowledge to become effective and contributing members of the organization. To determine the effectiveness of the onboarding process, a qualitative and quantitative analysis will be conducted. The analysis will cover involvement, onboarding procedures, and resulting motivational factors. It is expected that the analysis will reveal that implementing an onboarding procedure will increase team involvement and streamline initial knowledge transfer processes. Based on the results of the analysis, further recommendations will be made.

Oral & Poster Presentation Abstracts

Zach Lyles, C&BA - Economics, Finance and Legal Studies

Faculty Mentor: Robert McLeod, C&BA - Economics, Finance and Legal Studies

Jackson Mills, C&BA - Economics, Finance and Legal Studies

Head Coach Facial Masculinity and Team Performance

Zach Lyles, Finance Faculty Mentor: Robert McLeod, Finance Head Coach Facial Masculinity and Team Performance Recent studies in 2008, 2009 and 2013 have studied the structure of male faces in terms of the height and width ratio and its association to testosterone levels. It was believed that men with a higher width to height ratio possessed more testosterone and exhibited more aggressive behavior. We took this concept and applied it to NFL coaches and their team's success on the field. We wanted to see if coaches who possessed higher ratios were in fact more aggressive with their play calling and whether that led to greater success on the field or not. We formed a database of each coach for the last 10 years in each franchise and collected their team's stats for the season along with their facial measurements. We compared all the coaches' facial ratios and their team's success. We found a recurring theme that coaches with a higher ratio, meaning more testosterone, seemed to have more successful teams in terms of wins, offensive production and defensive efficiency. Because there are many other testable variables that could affect the data, our work is on going. The next factor we plan to look at is the role of the quarterback for each team.

Oral & Poster Presentation Abstracts

Makenzie Plyman, Nursing - Capstone College of Nursing
Faculty Mentor: Safiya George, Nursing - Capstone College of Nursing
Stefanie O'Neill, Nursing - Capstone College of Nursing

A Study of the Role of Music and Religion on African American Adolescent Females' Sexual Beliefs and Behaviors

African Americans (AA) have the highest rates of HIV/AIDS among any U.S. racial or ethnic group. The literature revealed that support from religious programs has greater impact than religion itself, and music negatively affects images of self-worth. The literature did not focus solely on AA adolescent girls and did not look into the effects of different types of religion and types of music beyond rap and hip hop. Considering the significant involvement and influence of religion in AA youth and the excess of sexual imagery in music videos (in 47% to 76% of videos), the objectives of this secondary analysis are to determine the role of music and religion in the sexual decision making and behaviors of AA adolescent females. The original study used focus groups, qualitative methods, and computerized questionnaires to identify cultural factors that influence sexual behaviors and decision making. The sample size consisted of 32 AA adolescent females (15 to 19 years old) from a high school and several YMCAs. More than half (65.6%) of the females were sexually active. Next steps include using NVivo and SPSS software to determine the importance of music preference and religion on the sexual decision making and behaviors of AA adolescent girls. The findings could help to highlight the role of these factors in AA adolescent girls' sexual beliefs and behaviors, as well as help to inform people who work with AA adolescent females so as to create more effective intervention programs.

Oral & Poster Presentation Abstracts

Elizabeth Di Valerio, A&S - Biological Sciences

Faculty Mentor: Safiya George, Nursing - Capstone College of Nursing

Exploring HIV Stigma in the US Virgin Islands

Elizabeth Di Valerio, Biological Sciences Faculty Mentor: Safiya George, Associate Professor and Director of Scholarly Affairs Exploring HIV Stigma in the US Virgin Islands The U. S. Virgin Islands (USVI) has one of the highest HIV rates in the U.S. to date. In order to understand high prevalence of HIV, it was important that social scientific research identify the factors that contribute to HIV, especially those that with relevance to the specific culture of the USVI. Primary research of quantitative surveys and qualitative in-depth interviews was conducted and examined the sociocultural factors that contribute to the high rates of HIV in the USVI. The research used a sample size of 52 participants, 7 of which were living with HIV. Secondary analysis was conducted to identify the stigmas about HIV that persist in the USVI. Qualitative analysis of in depth interviews using NVivo software found that the primary stigma was having been labeled to have HIV if an individual had been seen near an HIV related health facility. A possible implication of that stigma, as well as many others, are that in the USVI (and other developing countries) the stigmas persisting about HIV may discourage those who are HIV positive from getting treatment or disclosing their HIV status to sexual partners.

Oral & Poster Presentation Abstracts

Lacie Johnson, A&S - Chemistry

Faculty Mentor: Safiya George, Nursing - Capstone College of Nursing

Social Support, Depression and Perceived Stress with People Living with HIV, is there a correlation?

There have been several studies that have been conducted with people who have HIV that have shown an inverse correlation between a person's perceived stress and a person's perceived social support. A person's decrease in social support results in an increase in a person's perceived stress. However, the results are mixed and there is insufficient evidence as to what factor depression plays in this correlation. Is depression a moderator between the two or is there no correlation? The purpose of this study is to examine the association between perceived stress and social support and to determine what role depression plays in a person's perceived stress among people living with HIV. The data was collected in a cross-sectional study of 292 participants with HIV/AIDS. The data will be analyzed using SPSS Software Version 23 to conduct descriptive statistics, correlations, and a multiple linear regression.

Oral & Poster Presentation Abstracts

Bradley Johansen, C&BA - Economics, Finance and Legal Studies

Faculty Mentor: Shawn Mobbs, C&BA - Economics, Finance and Legal Studies

Do Shareholders Value CFO Board Membership?

Companies appoint their chief financial officers on occasion to the board of director of their company. This research project is an expansion of a previously completed paper by Professor Shawn Mobbs and studies whether or not the company's shareholders value the appointment of the CFO to the board of directors. In order to study this, I collected data based on a list of names of CFOS that were reported to have been recently appointed to the board of directors of their own company. The data included the earliest date that the appointment was announced and any noted extenuating circumstances, such as succession, death, retirement, etc. This data was input in a regression analysis developed by Professor Mobbs that analyzed stock price movement around the date of the announcement of the board appointment. Additionally, there was data collection and analysis done on the date of departure of CFOs that were currently on the board to study price reactions from that event.

Oral & Poster Presentation Abstracts

Hunter Foster, C&BA - Culverhouse School of Accountancy

Faculty Mentor: Todd DeZoort, C&BA - Culverhouse School of Accountancy

An Evaluation of Corporate Tax Practices

The purpose of this study is to determine the ethical limits of tax avoidance as employed by American corporations. Participants are given sample cases involving tax avoidance and must judge how various factors of a corporation's operations affect their perception of their tax policies. We especially focus on the effects of a corporation structuring itself internationally to shift its tax burden to nations with lower tax rates than the United States. We anticipate that people will be more sympathetic to a company's tax avoidance when it is contributing more of its taxes to the U.S. or operating with losses.

Oral & Poster Presentation Abstracts

Jessica Fulwider, A&S - Psychology

Faculty Mentor: Theodore Tomeny, A&S - Psychology

Autism and Typically-Developing Siblings: Relations with Social Support

Autism Spectrum Disorder (ASD) is a neurological disorder defined by social communication and behavioral deficits (Lord, Cook, Leventhal & Amaral, 2000). Interactions in families impact the child's cognitive state (Kim, McHale, Crouter & Osgood, 2007) and typically developing (TD) siblings adapt to resources that influence adjustment and enhancement. Previous studies suggest that outcomes for TD siblings are mixed (Orsmond & Seltzer, 2009), and this study sought to identify correlates of TD sibling adaptation. Participants included 113 TD siblings ages 11-17 ($M=13.32$, $SD=1.81$; 50% male) of an individual with ASD. TD siblings completed measures of perceived social support and overall maladjustment. Correlation analyses examined the relation between social support and maladjustment in TD brothers and sisters at differing ages. For the overall sample, social support was negatively correlated with maladjustment ($r = -.55$, $p < .001$). This trend remained when examining brothers and sisters separately ($r = -.57$, $p < .001$; $r = -.53$, $p < .001$, respectively). However, for brothers, the relation between maladjustment and social support was stronger for younger brothers ($r = -.68$, $p < .001$) than older brothers ($r = .34$, $p = .11$). For sisters, the opposite was found: $r = -.40$, $p = .02$ for younger sisters; $r = -.61$, $p = .002$ for older sisters. Results showed social support was more strongly associated with outcomes in younger brothers and older sisters. Implications will be discussed

Oral & Poster Presentation Abstracts

Daniel Dougherty, C&BA - Economics, Finance and Legal Studies

Faculty Mentor: Victoria Javine, C&BA - Economics, Finance and Legal Studies

Is Doing Good Bad for Investors? The Case of Socially Responsible ETFs and Mutual Funds

The number of socially responsible investment funds has grown considerably. As this segment of investments continues to grow, it is important to understand the impact of these securities. This study examines the performance of socially responsible exchange traded funds and mutual funds compared to the performance of traditional funds. Prior research has found little difference in performance between socially responsible mutual funds and traditional mutual funds. Socially responsible mutual funds and exchange traded funds will be matched with comparable traditional mutual funds and then their performances will be compared. The performance of the funds will be measured using several methods to determine if there are any differences in the level of performance in socially responsible funds and traditional funds. We expect to find that socially responsible mutual funds and exchange traded funds perform similarly to traditional mutual funds and exchange traded funds. Further steps in the study will analyze the causes of any differences in performance between the traditional and socially responsible funds.

Oral & Poster Presentation Abstracts

Jordan Cantrell, Engineering - Chemical and Biological Engineering
Faculty Mentor: William Hart, A&S - Psychology
Kyle Richardson, A&S - Psychology

How Sexist Humor Impacts the Workplace

How does disparaging humor impact the workplace? More specifically, how do sexist jokes directed toward a woman affect her influence among her coworkers? This study was conducted to gain a better insight on whether sexist humor could encourage coworkers to discount a woman's opinion more than they normally would have. The research was conducted through an online survey program. Since some people are more inclined toward a sexist attitude than others, the participants were asked a series of questions to determine how susceptible to sexism they are. They were then exposed to either sexist or neutral humor. Afterwards, they were presented with a persuasive essay where they were told the essay was written by either a man or a woman and asked to rate how virtuous the author seemed and how persuaded they were by the argument. The results indicated that the people who had a greater tendency toward sexism were more affected by the sexist humor than those who were lower on the scale, but the female author's ability to persuade people was not as affected as was previously anticipated. Instead, the female author's virtue was more likely to be doubted. There is a possibility that the persuasive essay in the experiment had too strong of an argument for there to be much doubt among the participants. Further research is going to be conducted to see if disparaging humor would have a greater impact on a woman's ability to persuade others if the argument did not have as much support.

Oral & Poster Presentation Abstracts

Alex Serman, C&BA - Economics, Finance and Legal Studies

Faculty Mentor: William Walsh, C&BA - Economics, Finance and Legal Studies

Gulf Red Snapper Resource Allocation Analysis

The Gulf of Mexico red snapper population was decimated by overfishing throughout its history, leading the government to implement regulations limiting access to the fishery. While these policies avoided biological extinction, they also produced unintended economic consequences in the form of depressed price levels and increased price volatility. The goal of this research is to catalogue the different strategies used to combat this dilemma from 1990-2014. The study considers the effects of the total weight of fish caught and the inflation-adjusted price per pound of the fish in order to evaluate the economic implications of the changing policies. The conclusion of the study was a successful catalogue describing the results of these policies.