

UNDERGRADUATE RESEARCH COUNCIL

The Undergraduate Research Council of Valdosta State University was organized in the fall semester of 2011. Membership includes faculty representative from the undergraduate academic departments and programs at VSU. The Council is charged with promoting undergraduate students' interest in research, with seeking ways to promote undergraduate students' involvement in research activities, and with helping faculty identify opportunities to involve undergraduates in research. The Council supports the implementation of Valdosta State University's Quality Enhancement Plan, which promotes undergraduate engagement in discipline-based inquiry. Prior to 2011, an undergraduate research symposium was celebrated for seventeen years in the College of Arts and Sciences.

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The Undergraduate Research Council would like to extend special thanks to Mr. Mark Mears and Ms. Sydney Bryan for their generous assistance with organizing the Symposium.



TWENTIETH ANNUAL

SYMPOSIUM *on* UNDERGRADUATE RESEARCH STUDENT UNION BALLROOM AND THEATRE

April 8-10, 2014

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DOES EDUCATION LEVEL AND VIEWS ON AUTHORITY AFFECT WILLINGNESS TO PROTEST?

Angel Hardy, Department of Sociology, Anthropology, and Criminal Justice

Faculty Sponsor: Dr. Anne Price, Department of Sociology, Anthropology, and Criminal Justice

The purpose of this research is to explain the social phenomena of peaceful demonstrations/protests and their reoccurrences over a specific time period to aid in social change. This paper examines the bivariate relationships between views on authority and willingness to participate in a peaceful demonstration and between educational attainment and willingness to participate among adults in the United States using the 5th wave (2005-2010) of the *World Values Survey*. The statistics show a significant negative bivariate relationship between views on authority and views on attending a peaceful demonstration. Those who have attended a peaceful demonstration or are willing to are more likely to report that greater respect for authority is a “bad thing.” The statistics also show a significant positive relationship between educational attainment and attending a peaceful demonstration. By identifying a skewed distribution of power and differencing resources on an individual basis have within a population explanations for conflict and protest can be further explored.

MEASUREMENTS AND ANALYSIS OF MECHANICAL STRENGTH OF DENTAL CERAMICS

**Carlos Ponce, Lauren Hale, Minh Tran, and Byung Kim,
Department of Physics, Astronomy, Geosciences, and Engineering Studies**

Faculty Sponsor: Dr. Barry Hojjatie, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Dental ceramic prostheses must be designed and constructed to withstand various multidirectional forces of mastication and occlusion for many years without premature wear or discomfort to the user. The objective of this study is to determine the mechanical strength of opaque dental porcelain subjected to biaxial (piston-on-three-balls) testing and three-point bending tests. Using circular and rectangular shaped molds, ceramic disc and ceramic bar samples were prepared and fired at various firing conditions in our VSU engineering laboratory. The samples were then subjected to flexure strength experiments using biaxial and three-point bending according to the standard test methods. The results of this study show that the conditions of porcelain samples and method of flexure test have a significant influence on strength of dental ceramics.

DESTRUCTION OF NATIONS THROUGH CHILDREN: A STUDY OF NATIVE AMERICAN CULTURAL SURVIVAL AND THE INDIAN CHILD WELFARE ACT OF 1978

Pamela A Johnson, Native American Studies Program

Faculty Sponsor: Dr. Lavonna Lovern, Native American Studies Program

This paper examines the Indian Child Welfare Act (ICWA) of 1978 and the continued cultural destruction of the Native American peoples through the removal of Native American children. The Indian Child Welfare Act was established to protect against the removal of Native American children from Native American communities in the case of foster care or adoption. Current Supreme Court rulings, such as *Adoptive Couple v. Baby Girl*, potentially place ICWA in jeopardy. This paper will examine this case and the current law suits in South Dakota, including *Oglala Sioux Tribe v. Van Hunnik*, which claim removal from the tribes is a constitutional violation of ICWA standards. The paper will conclude with a discussion of the potential impact involving these decisions for the future of the Indian Child Welfare Act.

A STUDENT-GENERATED MNEMONIC FOR ASYMPTOTES OF RATIONAL FUNCTIONS

Kyle Land, Department of Math and Computer Science

Faculty Sponsor: Dr. Iwan Elstak, Department of Math and Computer Science

In this presentation I study a device that I created in high school to help me solve problems in algebra, in particular the determination of vertical and horizontal asymptotes of rational functions. I used the device in my College algebra class and Dr. Elstak who was teaching the college algebra class took notice and asked me to explain all about its creation, use, connection to my algebra knowledge and its limitations. Together Dr. Elstak and I discussed the idea of documenting the emergence and use of the device. We had an interview and after that we collected scientific articles and articles by teachers on the subject of mnemonic devices. This is an abstract of our work.

Mnemonic devices are strategies that link new information to already existing knowledge through associations, rhymes, songs, pictures and more. There are broadly speaking three basic forms or strategies for mnemonics: Keywords strategy, peg-word strategy, and Letter-strategy. Mnemonics help students and teachers in memorizing theorems, operations, structures and in general, information for understanding certain sections of mathematics. Research shows that the use of mnemonics can greatly help students at all levels of education to learn new mathematics. Many mnemonic devices are generated by students themselves. They function as stepping stones for the individual student but they have limitations: They do not always lead to deeper conceptual understanding of concepts without further study and critical evaluation. All these aspects are discussed for my two mnemonic devices in the search for vertical asymptotes of rational functions.

A CURE FOR PASSIVE LEARNING

LaRae Seemann, Department of Biology

Faculty Sponsor: Prof. Gardner Rogers, Department of English

Introductory biology courses for majors at Valdosta State University encourage passive learning and fail to teach the inquiry skills necessary for careers in science and medicine. Even biology education organizations such as the AAAS recognize how research and new technological tools are transforming introductory courses. Interviews, extensive observation, and research on social constructivist approaches to teaching and learning in the sciences have led to the following conclusions: lectures must include activities that use cognitive modification processes rather than massive memorization, labs must foster open inquiry, and students, not professors, must become the constructors of knowledge. Additionally, the structure of the B.S. in biology has not adapted to meet the demanding interdisciplinary requirements of medical schools and new MCAT test sections. Paradigm changes in the Biology Department's curriculum will help its graduates acquire the superior research skills essential to the future of science and medicine.

CONGRESS IN THE 21ST CENTURY: FACTORS INFLUENCING PARTY UNITY IN THE CONTEMPORARY HOUSE

Nicholas A Rudnik, Department of Political Science

Faculty Sponsor: Dr. Luke Fowler, Department of Political Science

Institutional and electoral changes throughout the postwar era have significantly contributed to increased homogeneity of Congressional parties. These parties have endowed their leaders with powers otherwise unseen for over a century. Sustained Democratic majorities in the second half of the 20th century gave way to disgruntled liberal Democrats seeking to oust more-senior conservative legislators. More specifically, these liberal Democrats targeted southern Democratic committee chairmen who frequently pigeonholed legislative initiatives favored by a plurality of the caucus. The Democratic caucus underwent significant liberalization and population shifts throughout the south lead to a more 'responsible' two-party system and numerous unforeseen consequences. Several factors including, ideology, region, seniority and committee assignments are analyzed during the 112th Congress as a case study in order to discern which factors most contribute to heightened levels of party cohesion in the contemporary House of Representatives.

BELLEZA QUE RESTAURA/BEAUTY THAT RESTORES

Darian L. Hector, Department of Modern and Classical Languages and Business

Faculty Sponsor: Dr. Ericka H. Parra, Department of Modern and Classical Languages

This essay seeks to address the following research question: In what ways is the theme that beauty can restore life underscored in Gabriel García Márquez's short story "The Handsomest Drowned Man in the World"? In order to consider this research question a combination of primary research and secondary research was used. The essay contains analyses of passages from the text itself, which are in turn supplemented by sources such as *How to Read Literature like a Professor*. My argument centers on the thesis statement that, within the work, this Colombian writer uses symbolism and scenery in order to present the theme that beauty can restore life.

DIJKSTRA'S ALGORITHM AND GOOGLE MAPS

Daniel Lanning, Department of Math and Computer Science

Faculty Sponsor: Jin Wang, Department of Mathematics and Computer Science

Dijkstra's Algorithm is known as the shortest path source. In this research, we discuss Dijkstra's Algorithm and the applications that the algorithm has on the modern day. Dijkstra's Algorithm will find the shortest path from start to end. In the paper, we will show how Dijkstra's Algorithm is used in the classical way, and provide a pseudo-code of the algorithm. Dijkstra's Algorithm is the backbone of every navigation system, i.e. Google Maps.

IROQUOIS ATROCITIES IN THE AMERICAN REVOLUTION

Garrett Hall, Department of History

Faculty Sponsor: Dr. Dixie Haggard, Department of History

The American Revolutionary War was a civil war for the Iroquois Confederacy. Some nations chose to ally with the British and Loyalist forces. Others chose to support the Patriots. Members of the Iroquois Confederacy committed atrocities against both sides. A common misconception is that savages perpetrated those atrocities because their white allies could not control them. Careful analysis of accounts from those pursuing both Loyalist and Patriot interests proves that white officers expected and encouraged Iroquois brutality. Additionally, those involved produced accounts that clearly indicate white soldiers committed acts just as atrocious against their white and Native American enemies. While white soldiers who committed acts of carnage suffered no repercussions, the US government used Iroquois atrocities as justification for their removal in the early days of the United States.

DECONSTRUCTION OF CARTESIAN PARADIGMS IN SAMUEL BECKETT'S *MOLLOY*

Adrienne Fry, Department of English

Faculty Sponsor: Dr. Marty Williams, Department of English

This paper gives insight to the underlying messages hidden in the language and Cartesian paradigms in the novel *Molloy* by Samuel Beckett. The protagonist, Molloy, is created and defined through numerous references to the philosopher René Descartes, whose epistemology stemmed from applying thought, reason, and understanding. Beckett utilizes a popular postmodernist method, coined by Jacques Derrida as “deconstruction,” which, in a few words, can be defined as the inability of language to describe reality. Molloy is so unable to accurately describe what is going on in his life, constantly critiquing language to the point of dissociation, that he alienates himself from society. Constantly searching for who he is, Molloy is unsuccessful, aptly demonstrating Derrida’s point that words are inherently unable to represent anything but other words.

IMPLEMENTATION OF THE TELNET PROTOCOL USING THE JAVA LANGUAGE

Andrew J. Wells, Department of Mathematics and Computer Science

Faculty Sponsor: Drs. Jason Loew and Dave Gibson, Department of Mathematics and Computer Science

The TELNET protocol is used to connect to remote computerized devices. TELNET mimics what a user would see if they were physically using a computer's command-line interface to issue commands to the device. The benefit of the TELNET protocol is that it allows a user to interact with a device that is not physically accessible and does not require the extra processing power that is necessary to render the graphical interface of a modern computer. My implementation of the TELNET protocol in the Java language was born from a friend's question of whether it was possible to actually create such a program. It uses Java to perform networking communication, multi-threading, and text-filtering via regular expressions. As a final word, the TELNET protocol is being phased out because of its lack of encryption. This program was primarily developed for research and recreational purposes and should not be used for sensitive transmission.

DIVINE HEALERS: THE LEGACY OF THE CRUSADE ERA PHYSICIANS

Matthew Thomas Rivera, Department of Biology and Honors College

Faculty Sponsors: Dr. Sebastian Bartos, Department of History and Dr. Michael Savoie, Honors College

The paper examines the important medical developments of the Crusade Era. Primary sources of the time period from prominent figures in the history of medicine as well as other observers and historians demonstrate how Islamic and Christian medical ideologies, advancements in medical education, a growing pharmacopeia, and the development of hospitals impacted the development of Western Medicine. Reading lists from medieval universities reveal the impact of Islamic medical literature on European understanding. Other primary sources show the contributions of the Frankish territories in Palestine to the development of medical liability laws and the legal obligations of physicians. While the popular mindset tends to consider the Crusades themselves to be fruitless errands of violence motivated by religious fanaticism, I argue that the Crusader Period created a climate of cultural exchange that became a turning point in the history of the art and science of medicine.

DROWNING CAPITALISM: THE AQUATIC REDEMPTION OF THE RABBITTE FAMILY IN RODDY DOYLE'S *THE BARRYTOWN TRILOGY*

Ashley M. Miller, Department of English

Faculty Sponsor: Dr. Myrto Drizou, Department of English

Inspired by the struggles of the lower-class Irishmen, *The Barrytown Trilogy* features three distinct accounts of the Rabbitte family's exploits as they transition from middle class in *The Commitments* to becoming lower class in *The Snapper* only to end up fighting among themselves because of their social standing in the Barrytown community within *The Van*. Through these journeys, the protagonist, Jimmy Rabbitte Sr. learns the true dysfunction, disconnection, and dehumanization arising in him and his family, as well as among the community while suffering from the outside tension caused by Ireland's changing capitalist society. Because they struggle to provide for their families Jimmy Sr. and his friend, Brendan "Bimbo" Reeves, become capitalists with their own Fish-n-Chips business, but are overwhelmed by business commodities and capitalist ideologies. Throughout the trilogy, significantly in *The Van*, the presence of water becomes more and more evident as the Rabbitte family becomes more and more dysfunctional among themselves; therefore, water becomes an allegorical symbol of drowning capitalism to preserve the family's sense of individual self from the dehumanized, destructive nature of capitalism.

GENERATIONAL WEALTH GAP BETWEEN THE BABY BOOMER AND MILLENNIAL GENERATIONS: SYSTEMIC RISKS OUTSIDE OF FEDERAL REGULATION

Joel Dolzier Brown, Department of Accounting and Finance

Faculty Sponsor: Elvan Aktas, Department of Accounting and Finance

The generational wealth gap will be examined from an economic perspective. The Baby Boomer generation refers to individuals born post-World War II up until 1964. The Millennial generation, also referred to as Generation Y, includes individuals born from the early 1980s up to the early 2000s. The comparison of these two generations shows the greatest disparity in economic wealth of any two populations. This can be attributed to many factors, but we will focus on a few solid factors that have been collectively accepted as fundamental underlying causes. These include discussion on: implications of net worth; employment and poverty; social safety nets, income, and lifestyle; housing as an investment; education, job outlook and unsecured debt/liabilities.

USING COGNITIVE DISSONANCE TO PERSUADE PEOPLE TOWARDS A PLANT-BASED DIET

Hannah Jones, Department of Communication Arts

Faculty Sponsor: Dr. Michael Eaves, Department of Communication Arts

People make dietary decisions every day--decisions about breakfast, lunch, dinner, low-fat, low-carb, gluten free, weight watchers, and a plethora of other dietary choices. However, one particular diet has recently grown in great popularity and has become a prevalent factor in some people's diet choices: the plant-based diet. A plant-based diet is a diet relying strictly on whole foods, eliminating consumption of all processed foods and any animal by-product. This diet is unique for the fact that it not only has factual, educational enforcers but it also has a strong ethical component. A plant-based diet markets itself as the healthiest diet and most ethical, compassionate diet. So if this diet is as remarkable as studies suggest, how does society get on board with a plant-based diet? I believe it is through the use of the cognitive dissonance theory. Highlighting the dissonance of one's perception of health and one's ethics against their dietary decisions may bring the world towards a plant-based diet. Helping the world become a healthier, happier place may just start at our own dining room table.

6-YEAR COLLEGE AND UNIVERSITY GRADUATION RATES IN GEORGIA

Philip Lehman, Department of Political Science

Faculty Sponsor: Dr. James T. LaPlant, Department of Political Science

Graduation rates have always been an important statistic to study, but with funding for colleges and universities being tied to graduation rates, the importance of this key statistic is even greater, especially in Georgia where programs like Complete College Georgia are being introduced. This paper examines several factors that could possibly have an impact on college and university graduation rates in Georgia. The unit of analysis that is studied in this paper was all of the 58 four-year colleges and universities in Georgia. The dependent variable in this study is the 6-year graduation rate. The independent variables studied in this paper are whether the college or university is private or public, percentage of faculty that is full-time, percentage of students that are African American, percentage of students receiving Pell Grants, median SAT scores, student to faculty ratio, and the percentage of students who are women. This analysis showed that out of the 7 independent variables that were tested, 5 proved to be statistically significant. Out of these 5 statistically significant variables, median SAT scores proved to have the strongest correlation. Additionally, another key finding was that faculty matter given that the percentage of full-time faculty had a very positive impact on graduation rates, while a rising student to faculty ratio decreased graduation rates. The two independent variables that were not statistically significant were whether a college or university was public or private and the percentage of students that were female.

CONSTRUCTION AND DEPLOYMENT OF A GREEN TECH ARTIFICIAL REEF

Brittany Butler, Tess Baker, Sydney Plummer, Aaron Calvin, Kelsey Johnson, Warren Lott, and Brandon Atwater, Department of Chemistry

Faculty Sponsors: Drs. Thomas Manning, Department of Chemistry, and Kelly McKinnon, Pigeon Key Marine Foundation, Florida Keys

This presentation will focus on an applied project aimed at developing and testing a green technology method for stimulating the growth of marine life on a large scale. Currently NOAA regulations focus on dumping steel and concrete based structures in the ocean as the method of choice for artificial reefs. This can cost millions of dollars and result in massive environmental problems. For example, ships made of steel contain chromium and nickel. These toxic metals have been identified in marine creatures (lobsters, fish, etc.) that are caught for consumption near the structures. Our design provides an economical green tech method to build a aquatic or marine ecosystem starting at the microbial level. The students will described their experience at testing a range of parameters needed to optimize the use of cellulose as a material for artificial reefs. There are two basic goals, that the nutrient treated cellulose material submerge by itself and that it is colonized with marine creatures within days of deployment. Data from a seven month experiment in the Florida Keys and a nine month experiment in the northern Florida Keys will be presented. Some experiences associated with writing, researching and filing a United States Patent Application on the Project will be discussed. In addition, a marine conservation project focused on these reefs will conducted at Mallory Square in Key West will outlined.

INDIGENOUS WOMEN AND VIOLENCE IN GUATEMALA

Amy Lorena Gonzalez, Department of Native American Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Native American Studies

The initial colonization of Guatemala created a crisis in Indigenous populations. This crisis has continued in the post-colonial era as government and social forces attempt assimilation of the Indigenous people. While some efforts of assimilation have been successful, many within the Indigenous communities continue to resist. The political, economic and social tensions have created an atmosphere of violence and uncertainty for the Indigenous of Guatemala. This paper will focus on the violence experienced by the Indigenous Guatemalan women. The discussion will examine the economic disparities between Indigenous women and other Guatemalan demographics, the rate at which Indigenous women are leaving the communities and the resultant increase of family disruption including the increase of homeless Indigenous children.

UTILITY COMPUTING: THE EMERGENCE OF A NEW PARADIGM

Kwangil Sim, Department of Management

Faculty Sponsor: Dr. Taewon Hwang, Department of Management

For today's businesses, Information Technology (IT) is essential to execute their day-to-day operations. As IT investment has continued to increase, IT has become more of a cost center and a necessary evil. In order to address this issue, new computing paradigm called utility computing has recently emerged. Utility computing is modeled after conventional utilities (e.g., water and electricity). In this paradigm, IT services are provided as needed basis, enabling customers' payment based on actual usage. IT vendors have been quick to devise a road map for utility computing. Although no IT vendors currently provide a full set of utility computing services that satisfy all the IT needs of enterprise customers, they are experimenting with a variety of offerings in the market. Thus, this study examines the importance of the utility computing paradigm within the context of an enterprise computing environment.

THE RHETORICAL THEORY APPLIED TO THE SPORT OF WRESTLING

Ryan Baerwalde, Department of Political Science

Faculty Sponsors: Dr. Michael Eaves, Department of Communication Arts

The purpose of this paper is to explore the culture of wrestling, specifically focusing on the rhetoric that it develops within its participants and supporters. Three key topics were chosen to be the focal points of this investigation. They were the developmental factors of rhetoric within the wrestling community, the present status of the rhetoric as well as examples of its use, and lastly analysis predicting how the rhetoric will evolve over time. A recurring theme present in the research was the culture's devotion to its history and traditions. This resulted in consistent results for each of the three research questions that were posed. Although there were many consistencies, there was still a fair bit of evidence showing that the rhetoric of the sport's culture has changed, and will most likely change as time progresses. Essentially, wrestling rhetoric relies heavily on preserving traditions, and promoting both physical and mental fortitude. This is all due to the demands of the sport and the traditions that are upheld and valued within it.

RETHINKING EDUCATION TO FIT THE 21st-CENTURY STUDENT

Erin Jones, Department of Psychology

Faculty Sponsor: Gardner Rogers, Department of English

Formulaic teaching practices have become the accepted standard in the Core Curriculum at many institutions, but these traditional practices are failing to provide solid foundations for contemporary students' educational careers: students are not retaining the information presented in these predictable introductory courses, and they are not forming any deeper interdisciplinary connections. In order for students to have a valuable undergraduate learning experience, they must be engaged in creative new ways, especially through classroom discussions, experiments, and collaborative assignments, that foster critical thinking and student cooperation. Research in practices that foster active learning and critical thinking, along with observations and interviews, suggests that the thoughtful use of technology, from embracing the internet in online discussion boards and popular social networking websites to distribution of iPads and development of mobile phone applications, will better foster critical thinking, collaboration, and student engagement in the 21st-century classroom, thereby encouraging the development of lasting knowledge.

YEMEN THEOCRACY AND HYPOCRISY: CONSTITUTIONAL OPTIMISM WITHIN AN ILLIBERAL DEMOCRACY

Nicholas A. Rudnik and Kenneth D. Holiday, Department of Political Science

Faculty Sponsor: Dr. Marc G. Pufong, Department of Political Science

Yemen is a self-described Islamic state marred with issues ranging from limited socioeconomic mobility to arbitrary imprisonment and detention, coupled with blatant human rights violations. The Yemeni judiciary is purported to be independent—a basic precondition for a fair and equitable system of justice—yet is significantly and, potentially undesirably, influenced by the executive. While the Yemeni constitution asserts altruistic goals such as the right to a fair trial, equality in the eyes of the law, and guaranteed healthcare and education, in actuality, state actors frequently suppress political discourse which runs contra to their policies and values. In this paper, Yemen's mass iniquities are explained through a Rawlsian framework of justice and its 2011 populist uprising is expounded by employing Davies's J-Curve theory of revolution. Rapidly declining incomes—for the purposes of this analysis—are said to most significantly contribute to Yemen's revolution, seen here as part of the larger 'Arab Spring' movement.

ANALYSIS OF CORROSION DAMAGE IN ENGINEERING MATERIALS

**Joshua K. Brant and Jordan B. Franklin,
Department of Physics, Astronomy, Geosciences, and Engineering Studies**

Faculty Sponsors: Dr. Barry Hojjatie, Department of Physics, Astronomy, Geosciences, and Engineering Studies; and Dr. Ahmad Saatchi and Dr. KkochNim Oh, Department of Materials Science and Engineering, Georgia Tech

Corrosion is a phenomenon that has affected industries for many years. An important corrosion environment is an acid solution or aqueous solution with pH less than 7, where the hydrogen is produced during corrosion process. The objective of this study is to analyze corrosion behavior of some engineering materials specifically hydrogen permeation on several pipeline steel. We created a corrosion cell using a potentiostat, three electrodes, and a solution to mimic the metals environment at a corrosion laboratory at Georgia Tech. In this study we will present the results obtained from a hydrogen permeation test to determine the hydrogen concentration dissolved into the metal and the flux and diffusion of hydrogen through a metal sample.

INFINITUDE OF PRIMES OF THE FORM $P=X^2+NY^2$

Erica Garcia, Department of Math and Computer Science

Faculty Sponsor: Dr. Jose Velez Marulanda, Department of Math and Computer Science

For specific values of n , we use the fact that a prime number p is of the form $p=x^2+ny^2$ with x and y integer numbers if and only if p divides $f_n(k)$ for some integer k , where f_n is a certain non-constant polynomial with integer coefficients with $f_n(k)$ non-zero, to prove that there are infinitely many primes p of the form $p=x^2+ny^2$. This extends the following well-known result. *A prime number p divides k^2+1 for some integer k if and only if p is the sum of the squares of two integers. Moreover, there are infinitely many of these primes.*

**FROM CHILD TO WOMAN: GABRIEL PASCAL'S CLEOPATRA IN THE 1945 FILM
CAESAR AND CLEOPATRA**

Victoria C. Rodriquez, Department of History

Faculty Sponsor: Dr. Melanie Byrd, Department of History

This paper compares Hollywood's image of Cleopatra as depicted in the 1945 film *Caesar and Cleopatra* based on the play of the same name by George Bernard Shaw to ancient sources and demonstrates how Hollywood distorts the images of historical figures to modern audiences. Filmmakers portray Cleopatra as an immature young girl in need of male guidance to bring her to womanhood. However, this image vastly differs from contemporary images of Cleopatra, especially portrayals of ancient writers such as Cassius Dio, Cicero, and Plutarch who depict her as a cunning, physically unattractive woman. Filmmakers work against the historical sources by adding Hollywood glamor to Cleopatra's appearance in order to sell her story to a modern audience. Creative license gives filmmakers the power to manipulate history resulting in misguided popular perceptions of history.

**THE INFLUENCE OF SALINITY AND COPPER EXPOSURE ON COPPER
ACCUMULATION AND PHYSIOLOGICAL IMPAIRMENT IN THE SEA ANEMONE,
AIPTASIA PALLIDA**

Pratikkumar P. Patel, Department of Biology

Faculty Sponsor: Dr. Gretchen Bielmyer, Department of Biology

Metal pollution is a common problem in many aquatic environments, particularly those surrounding densely populated areas with substantial anthropogenic inputs. These same areas are also exposed to continuous changes in salinity due to freshwater discharge. In excess, metals may cause deleterious effects in aquatic biota. Although metals are a noted concern, the effects of metals at different salinities on symbiotic cnidarians inhabiting near-shore environments, are only scarcely studied. The sea anemone, *Aiptasia pallida*, was used in a series of experiments designed to investigate copper accumulation and effects in *A. pallida* at two different salinities (20 and 25 ppt). *A. pallida* were exposed to a control and 3 three levels of copper concentrations for 21d. Copper accumulation and the activity of anti-oxidant enzymes were measured. Photosynthetic parameters in the symbiotic dinoflagellate algae were also quantified. *A. pallida* accumulated copper concentration-dependently over time and higher accumulation was observed in lower salinity saltwater.

ATTENTION WHORE

Makeda Bryce, Department of Communication Arts

Faculty Sponsor: Professor Catherine Schaeffer, Department of Communication Arts

The dance titled “Attention Whore” is my interruption of how males and females interact for each other’s attention and how society’s gender roles affect these actions. The sound score is a mixture of text from “we should all be feminists” by renowned Nigerian novelist, Chimamanda Ngozi Adichie, and musical excerpts from the artist Flying Louts. What I have seen and experienced is that men rule the world only because society has told us so. I have also found that people with weak egos can either be very outspoken because they feel that they are not being heard, or are very shy and conservative. And, is usually the woman who is to blame for acting like an attention whore. In this dance I hope to show that we all share the same fears, hopes, and dreams whether male or female. Gender is just a classification and not a definition.

KAWASAKI DISEASE: THE MOST EFFECTIVE TREATMENT

Jasmine Spencer, Department of Biology

Faculty Sponsor: Dr. Christine James, Department of Philosophy and Religious Studies

This research addresses the debate on the proper treatment for Kawasaki Disease (KD), a vasculitis that primarily affects infants and children. This particular vasculitis is an inflammation in the blood vessels and causes changes in the lining of the blood vessels. This research compares studies that illustrate which treatment is best based on their results. Studies consist of IVIG treatment being tested alone for KD and/or IVIG treatment being tested and compared to some other treatment. The treatments presented were IVIG (intravenous- immunoglobulin) treatment, Plasma Exchange, Steroid Pulse Therapy and Traditional Chinese Medicine Three wingnut Root Triptolide extract. IVIG treatment has been argued to be the most effective, but each of the other treatments has supporters in the research literature that oppose IVIG. According to the results of each study, this research will argue that IVIG is the most effective treatment for Kawasaki Disease (KD).

EXAMINING THE INFLUENCE OF SELF-EFFICACY AND SELF-REGULATION IN AN ONLINE LEARNING ENVIRONMENT

Rachel Lorraine Bradley, Department of Psychology and Counseling

Faculty Sponsors: Dr. Blaine Browne and Dr. Heather Kelley, Department of Psychology and Counseling

This paper examined self-efficacy and self-regulatory skills and its influence on achievement in an online learning environment. This study utilized the Online Academic Success Indicators Scale (OASIS). The results of the scale were compared to previous tests measuring the predictive nature of self-efficacy and self-regulatory skills on academic success for the purpose of applying these skills to an online environment. Statistical analyses indicate strong correlations between self-efficacy and self-regulatory scores for both online learning environments and traditional learning environments. These findings suggest that high self-efficacy and positive self-regulatory behaviors are reliable predictors of academic success in online courses. Additionally, these findings validate the OASIS as an effective tool for measuring self-efficacy and self-regulation in online instruction.

INTERSPECIFIC COMPETITION LOKTA-VOLTERA MODEL WITH NON-LINEAR SQUARE ROOT TERMS

Daniel Drummond, Department of Math and Computer Science

Faculty Sponsors: Jemal Mohammed-Awel and Andreas Lazari, Department of Math and Computer Science

We analyzed a mathematical model that describes the interaction of two competing species which are ecologically identical, i.e. they use the same resources. The model is a Lokta-Volterra that incorporates interspecific competition using non-linear square root terms. We performed mathematical calculations to determine the number of boundary and interior equilibrium points for all possible parameter value groups. Our results suggest that in some cases the model has more than one interior equilibrium points in the first quadrant. We perform theoretical and numerical calculations to determine the stability and instability of all equilibrium points for all cases; and we explain the biological interpretation.

**SIGNAL TO NOISE RATIOS VERSUS COLD FUSION:
STUDENT LED EXPERIMENT WITH HIGH VOLTAGE, HIGH FREQUENCY
DISCHARGE**

Aaron Calvin, Department of Chemistry

**Faculty Sponsors: Dr. Thomas Manning, Department of Chemistry; Dr. Russ Goddard,
Department of Biology; and Dr. Jim Happell, University of Miami**

Many textbooks provide students with copious amounts of data in tables and problems. Rarely are standard deviations included with the values that were, at one point, obtained experimentally. This can be a fundamental flaw in students evaluating datum to determine if some chemical or physical parameter plays a critical role in a chemical reaction. Nuclear fusion is a holy grail of science because of its potential impact on society as a source of energy. Cold fusion gripped the scientific community twenty-five years ago but erroneous data discouraged additional research in the field before it started. This experiment, given a minuscule change of success from the beginning, is a variation on the original experiments by Pons and Fleishman. High frequency (500 kHz) and high voltage (50 kV) discharge was arced through a D₂O solution using Pd electrodes to induce the redox reaction. In evaluating the results, students learn the critical importance of statistics in evaluating tritium counts and deciding whether or not a low energy nuclear reaction involving fusion occurred.

THE NEED FOR 21ST-CENTURY GRADING

Morgan Blough, Honors College

Faculty Sponsor: Gardner Rogers, Honors College

An honors seminar course offered in the Fall semester of 2013 spurred a project that considers whether or not the current grading method is an accurate representation of learning. Moreover, it considers if quantitative analysis can possibly measure the qualitative skills that higher education is supposed to impart on its students. The research, relying on interviews, surveys, traditional research, and my own observation, suggests that contract grading, in association with crowdsourcing (peer review), is a viable option that prepares students for the forms of assessment they will encounter in the work force. Contract grading and crowdsourcing encourage creativity and collaboration—skills that are highly sought after by employers. This method of assessment combined with a learning environment that actively engages students in methods of critical thinking could potentially launch American education out of the industrial science that produced it, and into the 21st century.

MOTIVATION AND COMMITMENT FACTORS OF VOLUNTEERS IN ENVIRONMENTAL NON-PROFIT ORGANIZATIONS AND IMPLICATIONS FOR THE FUTURE

Adrienne Fry, Honors College

Faculty Sponsor: Dr. Michael Savoie, Honors College

This paper explores environmental non-profit institutions, on an organizational and individual level, by examining the motivations of the non-profit organization (NPO) volunteer base. I investigate the relationships between environmental NPO executives and volunteers and also discuss organizations as creating a social community among volunteers, demonstrating a positive correlation to commitment to a particular organization. I provide my personal experience as the intern at a local environmental NPO, further supporting the claims I make throughout my paper. To conclude, I examine the broader aspects of environmental volunteer motivations and how they directly and indirectly correlate to one's self-fulfillment, while also demonstrating how for-profit organizations are becoming more environmentally virtuous, giving an optimistic view of the future in the public and private sectors.

THE DIVINE FEMALE REDEEMER OF TRIMOPHIC PROTENNOIA: AN ANCIENT VOICE OF FEMALE WISDOM

Susan Leigh Jones, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lily Vuong, Department of Philosophy and Religious Studies

Among the ancient texts found in 1945 within the Nag Hammadi Codices there exists an intriguing, previously unknown revelatory treatise featuring a divine and distinctly female speaker. This text, titled *Trimorphic Protennoia*, (*The Three Formed [Divine] First Thought*), provides the modern reader with an excellent opportunity to explore conceptualizations and imagery of the Divine Feminine incorporated within proto-Christian and Gnostic traditions. This essay will examine *Trimorphic Protennoia* in an effort to ascertain literary, religious, and socio-historical influences as well as its possible authorship, intended audience, and probable utilization within its community. Emphasis will be given to the processes involved in the development of early Christianity and the influence of masculinity on the female Divine Redeemer found in *Trimorphic Protennoia*.

ENGINEERING ECONOMIC ANALYSIS OF THE NEW HEALTH SCIENCE AND BUSINESS ADMINISTRATION BUILDING

**Victoria A. Ratte, Jarred S. Woodruff, and Andre J. Council, Department of Physics,
Astronomy, Geosciences, and Engineering Studies**

**Faculty Sponsors: Dr. Hadi Kahalzadeh, Fairleigh Dickinson University,
Department of Political Science and Dr. Barry Hojjatie, Department of Physics,
Astronomy, Geosciences and Engineering Studies**

The new VSU Health Science and Business Administration (HSBA) building will allow VSU to expand its existing academic programs and develop new degrees to produce more health care professionals. The objective of this study is to perform an engineering economic evaluation of the HSBA building and present an overview of the decision process with regard to the project life cycle and monetary items in forecasting the cash flow project including the capital requirements, expenditures and revenues. Four types of project cash flows: expenditure, income, net, and cumulative net will be developed. Also, four evaluation metrics will be calculated: rate of return (ROR), net present value (NPV), internal rate of return (IRR), and payback period (PP), in which we define discount rate for a period of 30 years. Based on the available data about the level of investments, expenditures and revenues, the establishment of the new HSBA building was regarded economical.

THE AMBIGUITY OF MASCULINITY AND FEMININITY IN *THE STRANGE CASE OF DR. JEKYLL AND MR. HYDE*

Holly Bassett, Department of English

Faculty Sponsor: Dr. Jacob Jewusiak, Department of English

This paper deals with the problem of gender roles in Robert Louis Stevenson's novella, *The Strange Case of Dr. Jekyll and Mr. Hyde*. This novella lacks any substantial female character, and the few minor female characters that appear in the work are associated with weakness and monstrosity. This treatment of women in the novella suggests that a tension exists between masculinity and femininity, a tension that is mirrored in the relationship between Dr. Jekyll and Mr. Hyde. The purpose of this paper is to delve further into the relationship between Jekyll and Hyde and in doing so discover the purpose of the conflict between masculinity and femininity. Using theories by Luce Irigaray and Eve Kosofsky Sedgwick, I conclude that the relationship between Jekyll and Hyde is incomplete due to a crisis of bonding. The instability of Jekyll and Hyde as two incomplete beings emulates the instability of the strict confinements of gender roles in society.

THE FORBIDDEN FRUIT: ORGANIZED RELIGION AS A SOCIAL CONTROL DEVICE

Mary Booker, Department of Sociology, Anthropology, and Criminal Justice

Faculty Sponsor: Dr. Michael Meacham, Department of Sociology, Anthropology, and Criminal Justice

This paper analyzes the Conflict theory of Karl Marx, stating that the elite members of society maintain social order through domination and power over the poor and powerless. Inequality arises when people cannot advance towards societal and economic resources at their own will; the role that organized religion tends to play is an incentive for moral rationale to conform to this will of power. This paper connects the Conflict theory to the past and present issues of social inequality and social control using content analysis of the bourgeois exploiting the proletariat through organized religion. Would the present income gap between classes and the present social inequality within the levels of stratification be so vast like they are today if religion was not so bureaucratically organized? Inequality is a social phenomenon that has yet to come to terms with its origins and why it is so present in our everyday lives.

POPULATION DYNAMIC ON WHITE-TAILED DEER IN GEORGIA

Jennifer Griffin, Department of Math and Computer Science

Faculty Sponsor: Dr. Denise Reid, Department of Math and Computer Science

We studied the population changes of white-tail deer using logistics equation over a course of five years. While deer populations have been studied by others, we could not find anything that included the logistic equation. We examined data taken by Georgia Wildlife Resources Division and used the data in the logistic equation to predict the deer population. We then took the estimated data and compared it to the actual data and obtained the percent error. From our results we conclude that the logistic equation is not a good predictor of deer populations over time.

VOLTAIRE'S *CANDIDE* AND POSTCOLONIAL THOUGHT

Holly Bassett, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Aristotelis Santas: Department of Philosophy and Religious Studies

This paper addresses the problem of colonialism in the eighteenth century. Using Voltaire's *Candide* as a representation of how people of the eighteenth century, enlightenment philosophers in particular, viewed the colonized, I will examine the question of what the Enlightenment expressed about colonialism and slavery and if the philosophers approved, disapproved or simply didn't care. *Candide* can be used to examine this question because the text shows apathy towards colonialism and the colonized, as well as towards slavery and race in general. However, through the use of language *Candide* also portrays a certain familiarity between races and countries. I will look mainly at apathy and familiarity to decide what Voltaire's views on colonialism and slavery were, and if he was trying to use at least part of *Candide* to voice those opinions.

A DESIGN JOURNEY THROUGH RUSSIAN CHURCHES: THE ASSUMPTION CATHEDRAL AND THE CATHEDRAL OF ST. VASILY THE BLESSED

Tanya Tsaruk, Department of Art

Faculty Sponsor: Mr. Tommy Crane, Department of Art

Russia adopted the Christian faith from Byzantium, which is why the Byzantine style forms the basis for the architectural and artistic model of Russian churches. However, this was not the only cultural influence that had a visual impact on the design of the Russian church, both inside and out. This poster will identify some of the most important artistic styles that influenced Russian church design. The subjects of this study are The Assumption Cathedral and The Cathedral of St. Vasily the Blessed, because they include the most pronounced features typical for these Russian key styles. The purpose of this research is to present the uniqueness of Russian church architecture, its genuine beauty, and intriguing history.

THE CRESCENT: THE DESIGN BEHIND ITS HISTORY

Natalie Milko, Department of Art

Faculty Sponsor: Mr. Tommy Crane, Department of Art

This poster will examine the architecture of one of the most admired historical buildings in Valdosta, Georgia, The Crescent. Built over a century ago as a private home for Senator William Stanley West, the Crescent contains a variety of styles in its architectural details and design elements. Broadly categorized under the Neo-classical style, the building displays a mixture of Victorian, Federal, and Greek influences. For some, it is easy to overlook the planning involved in the construction of such a prominent structure. However, when the Crescent was threatened with demolition in 1951, the beauty and value of this building was recognized by the Valdosta Garden Club. Because of their actions, the building was saved and is currently open to the public and hosts many special events. Through close examination of its architectural and structural details, the design significance of the Crescent is found equal to its historical prominence.

WHAT WE CARE ABOUT: A PHOTO-VOICE LITERACY PROJECT

Alexandria Crowder, Daisy Daniel, Anna Hardin, Rebecca Kluball, Rebecca Michael, Carlin Morrison and Lorianna Weathers, Department of Art

Faculty Sponsor: Dr. Paula L. McNeill, Department of Art

Using student-generated photographs from their iPads and photo elicitation writing techniques to document their photo essays, this poster illustrates the outcome of a photography-driven literacy project in partnership with the Valdosta State University art education program and the Valdosta City Schools Valdosta Early College Academy (VECA) for promising, college-bound students in grades 6th through 12th. In collaboration with fourteen 9th grade language arts students and their teacher, seven pre-service art education students implemented the project during their weekly scheduled art methods classes in Spring 2014, resulting in a collection of images and reflections for a local community-wide exhibition.

ASSESSMENT OF HEAVY METAL CONTAMINATION IN THE BIOTA OF FOUR RIVERS WITH VARYING DEGREES OF HUMAN IMPACT

Christina G. Duckworth, Pratik K. Patel, Erika L. Schumacher, Department of Biology

Faculty Sponsors: Drs. Gretchen Bielmyer and Matthew Waters, Department of Biology

Metal pollution in aquatic environments is a reported consequence of elevated anthropogenic inputs, particularly from densely populated areas. The objectives of this study were to quantify metal in the waters and biota of four streams in South Georgia, each with varying levels of anthropogenic impact. Water and tissue samples from each stream were analyzed for metals using atomic absorption spectrometry. Additionally, the macrophytes and fish were identified to assess biodiversity at each site using biodiversity indices. Metal concentrations in fish tissue differed between sites and among species, corresponding to metal concentrations in the water for Cu only. Withlacoochee (fourth order) and Little River (third order), both being heavily impacted by anthropogenic sources, contained the highest metal concentrations in the water but not in fish tissue compared to Sugar Creek and One Mile Branch (second order and first order streams, respectively).

ENVIRONMENTAL STRESS INDUCES SEX RATIO CHANGES OF ADULT *GEUKENSIA DEMISSA*

Joseph Hayes and Steve Watts, Department of Biology

Faculty Sponsor: Dr. Cristina Calestani, Department of Biology

Geukensia demissa, commonly referred to as the ribbed mussel, is native to the Atlantic coast of North America. Our research examines the seasonal sex ratio fluctuations in population samples collected along the coastline of Georgia, and the effects of environmental stressors on the sex ratio. Stress conditions were produced either by periodically increasing water salinity or by starvation. Our results indicate that sex ratios during the fall and winter are male biased, and that both starvation and increased salinity further increases the male to female ratio. Considering that producing eggs requires more energy than producing sperm, our study suggests that a male bias sex ratio may be an energy saving mechanism. This would allow for an improved survival rate of the mussel population during stressful environmental conditions.

EPIPHYTIC ALGAL COMMUNITY STRUCTURES WITHIN THE RIVERS OF SOUTHERN GEORGIA

Codie Picariello and Elizabeth Tuttle, Biology Department

Faculty Sponsors: Drs. Matthew Waters and Gretchen Bielmyer, Department of Biology

Epiphytic algae are important components of stream ecosystems, providing a source of organic carbon, oxygen, and other services, but these services can be impacted by environmental and anthropogenic factors such as flow rate, light, and watershed land use. Here, we analyzed epiphytic algal community composition from four streams in South Georgia, in order to understand the impacts of these stressors on stream primary producers. Epiphytic algae developed on tile traps that were placed into the streams and sampled on a monthly basis. Algal community composition was determined by measuring chlorophylls and carotenoids through high performance liquid chromatography. Overall, community structure was predominantly diatoms, but green algae were also a significant component. For the majority of pigments measured, total pigment amounts decreased in correlation to gauge height. Our results show that epiphytic community structure responded to environmental factors such as precipitation and DOC, rather than watershed land use.

FLORISTIC INVENTORY OF THE LAKE LOUISE FIELD STATION, LOWNDES COUNTY, GEORGIA

Joshua Luke Steele, Department of Biology

Faculty Sponsor: Dr. Richard Carter, Department of Biology

An inventory of the vascular plants and plant communities of the Lake Louise Field Station (LLFS) in Lowndes County, Georgia, was conducted. The LLFS is a 76.9 hectare area owned by Valdosta State University. Vascular plants were sampled over nine trips from June to November 2013, and collecting will continue through April 2014. Voucher specimens will be deposited in the Valdosta State University Herbarium. A species-area curve, generated using data from similar inventories throughout the southeastern United States, predicted 325 vascular plant species for an equivalent area. To date, our inventory has yielded 214 vascular plant species, comprising 150 genera in 69 families. Nine rare and unusual plants listed by the Georgia Department of Natural Resources were documented. Baseline data obtained through this study will be useful in developing informed management strategies for the site and will support ecological and other research at the LLFS.

GUT CONTENTS OF THE MOURNING DOVE (*ZENAIIDA MACROURA*: COLUMBIDAE) AND THE POTENTIAL FOR SEED DISPERSAL

Phillip Lowe and Camry Winford, Department of Biology

Faculty Sponsor: Dr. Richard Carter, Department of Biology

The Mourning dove (*Zenaida macroura*) is a member of the pigeon family (Columbidae), which feeds primarily on seeds. Because doves tend to feed in overgrown fields, their diet can provide insight into the dispersal, distribution, and population dynamics of weeds along with general insight into their feeding habits. Documentation of seed dispersal by Mourning dove also enables farmers, agricultural scientists and natural resource managers to understand the distributions of weeds and to take measures to limit their adverse effects on crops and natural ecosystems. We analyzed Mourning dove gut contents in 69 birds taken from Berrien, Cook and Grady counties, Georgia, between the years 2004 and 2006. An earlier analysis of these samples showed the presence of the federal noxious weed Benghal dayflower (*Commelina benghalensis*), and our current research has identified more than 30 additional species.

PROMOTING SCIENTIFIC RESEARCH THROUGH HERBARIUM DIGITIZATION AT VALDOSTA STATE UNIVERSITY

Jessica Marie Bartek and Amy M. Vardeman, Department of Biology

Faculty Sponsor: Dr. Richard Carter, Department of Biology

The Valdosta State University Herbarium is a research collection of plant specimens and label data, with emphasis on the diverse flora of the coastal plain region of Georgia. Researchers at the Valdosta State University Herbarium are collaborating with the University of Georgia Herbarium in a three-year project to produce an on-line atlas of the plants of Georgia. Through this project, undergraduate student assistants at Valdosta State University are actively involved in digitizing and curating the herbarium. To date, 65,000 vascular plant, bryophyte, and lichen specimens have been imaged and 60,000 specimens have been databased. Student assistants are also involved in routine aspects of herbarium curation. In addition to enhancing the Valdosta State University Herbarium and promoting the involvement of undergraduate students in scientific research, these projects will increase access to these valuable resources, bringing specimens and data before a much wider audience.

THE EVOLUTION/CREATIONISM CONTROVERSY FROM THE PERSPECTIVE OF BIOLOGY MAJORS

Deidra Jill Bricker, Department of Biology

Faculty Sponsor: Dr. Leslie S. Jones, Department of Biology

Religious students often experience difficulty reconciling biological evolution with their own personal beliefs. This is especially true in South Georgia where students (and the populous at large) are particularly religious and feel the pressure to avoid stepping outside the bounds of their community's values. This study was designed to examine how biology majors at Valdosta State University feel about studying evolution. Qualitative data was collected from biology majors via an email survey and emergent theory was used to categorize their responses. There are Creationist students who choose to navigate their way through biology classes without accepting the validity of evolutionary theory. However, most biology students find ways to incorporate the scientific explanation of the origins of life into their worldview.

THE IMPACT OF URBANIZATION ON WATER QUALITY IN FOUR RIVERS WITH VARYING DEGREES OF ANTHROPOGENIC DISTURBANCE

Amber Blocker, Aundrea Duncan, and Charlie Wiggins, Department of Biology

Faculty Sponsors: Drs. Gretchen Bielmyer and Matthew Waters, Department of Biology

A study was conducted to determine the impact of varying degrees urbanization on four streams. Water quality parameters were measured at three sites along each stream over time including: alkalinity, hardness, chloride, pH, carbon dioxide (CO₂), dissolved oxygen (DO), temperature, ammonia, nitrate, and nitrite. Differences in water quality have been observed due to changes in rainfall, river depth, and the seasons. CO₂ increased and pH decreased due to increased rainfall. Rainwater, agricultural and domestic runoff, and increased organic debris, may contribute to increased nutrient concentrations, possibly increasing phytoplankton growth and decreasing DO levels; however, at our sampling sites nutrient levels were generally low and DO levels were higher. Increasing temperatures and anthropogenic inputs may influence our current results in future field collections. Overall, water quality among sites and over time have changed, but the Simpson's Index of Diversity indicated that all streams were of similar community structure.

THE IMPACTS OF WATERSHED LAND USE AND ENVIRONMENTAL FACTORS ON SEDIMENT TRANSPORT AND LIGHT ATTENUATION IN FOUR STREAMS IN SOUTH GEORGIA

James Timothy Ragan and Cliff Hunter Crummey, Department of Biology

Faculty Sponsors: Dr. Matthew N. Waters and Gretchen K. Bielmyer, Department of Biology

Stream sediment inputs are influenced by precipitation, land use and seasonality, which can also alter the type of organic matter entering streams. The focus of this research was to determine how land use and other environmental factors relate to material transport, substrate deposition and light attenuation in four South Georgia streams. Sampling was conducted on two week intervals to monitor total suspended solids (TSS), bed substrate, and dissolved organic matter. Results indicate that stream substrates were primarily sand (>98%) with organic matter accounting for around 0.02% of total bedload. Total suspended solids for lower order streams increased following a precipitation event, while larger order streams indicated a delayed influx from tributaries. Chromophoric dissolved organic matter was higher in higher order streams and increased gauge height showed a decrease in CDOM in all streams. Results show that general patterns of sediment transport and light attenuation relate to precipitation and land use.

THE INFLUENCE OF SALINITY AND WATER CHEMISTRY ON THE ACUTE TOXICITY OF CADMIUM TO ESTUARINE KILLIFISH

Codie Picariello, Department of Biology

Faculty Sponsor: Dr. Gretchen Bielmyer, Department of Biology

The euryhaline mangrove killifish, *Kryptolebias marmoratus*, inhabit estuaries that rapidly change salinity on both daily and seasonal basis. Cadmium toxicity in freshwaters is known to vary with water chemistry; however, characterization of cadmium toxicity in estuarine systems has been given far less attention. Recent studies have reported decreased cadmium toxicity with increasing salinity; however, it is unclear which components of saltwater are protective against Cd toxicity. Cations, such as calcium and magnesium, compete with cadmium for binding sites on the fish gill; while anions, such as sulfate and chloride, bind to cadmium, resulting in less toxic forms of the metal. In this study, we investigated the influence of CaSO₄ (100 and 200 mg/L), CaCl₂ (200 mg/L), and MgSO₄ (300 mg/L) on Cd toxicity to *K. marmoratus*. Calcium chloride protected against Cd toxicity to the greatest extent demonstrating that both calcium and chloride reduce the toxic effects of Cd.

THE RELATIONSHIP OF STREAM CHEMISTRY AND HABITAT ON THE BIODIVERSITY OF STREAM MACROINVERTEBRATES

Somuayiro Nwokike, Rebecca Tucker, and Benjamin Webster, Department of Biology

Faculty Sponsor: Matthew N. Waters and Gretchen K. Bielmyer, Department of Biology

Macroinvertebrates are good indicators of health for localized aquatic ecosystems. Four streams of different order and land use in Lowndes County, South Georgia were sampled. The Withlacoochee is order 4 with forest/ag/urban land use. Little River is order 3 with forest/ag land use. Sugar Creek is order 2 with urban/forest land use. One Mile Branch is order 1 with urban land use. Specimens were collected via kick nets and by hand; then identified and placed into specific pollution resistant groups to determine stream health. The specimen's biodiversity and Beck's Index were later recorded. Despite differences in land use and stream order, these four streams are considered "healthy" according to Beck's Index. When found, Beck's Index for that sample dropped dramatically and the sampling's overall health dropped negatively. As biodiversity increased, the stream's health score remained positive. Biodiversity showed to have a strong correlation with the stream health.

VARYING PATTERNS OF SPANISH MOSS (*TILLANDSIA USNEOIDES*) ABUNDANCE WITHIN AND BETWEEN DIFFERENT FOREST COMMUNITIES AT THE LAKE LOUISE RESEARCH CENTER

Bianca Stephania Farley, Department of Biology

Faculty Sponsor: Dr. Corey Devin Anderson, Department of Biology

No studies to date have characterized the spatial distribution of Spanish moss (*Tillandsia usneoides*) within a forest community. We tested the hypothesis that Spanish moss is "patchy" and we examined how its distribution varies in different forest communities at the Lake Louise Research Center. We sampled five 50 x 50 m quadrats in both fire-maintained pine forest and secondary mixed hardwood forest and used spatial correlograms to assess pattern. Spanish moss was found in all quadrats sampled in secondary forest, with three of five plots exhibiting positive spatial autocorrelation in Spanish moss abundance as short distances. Spanish moss was found in only two of the five quadrats sampled in pine forest and its abundance was also spatially autocorrelated at short distances. Our results suggest that trees at close distances tend to have similar amounts of Spanish moss, but that the spatial pattern may vary within and between different forest communities.

3D PRINTING AS A METHOD TO TEACH INSTRUMENTAL ANALYSIS

Pam Brown, Aaron Calvin, Nicholas Fight, Anthony Fino, Ashley Humphries, Brittany Larcart, Chandler Massey, Tysheon McGreggor, Brock Merchant, Oscar Otieno, Mehulkumar Patel, Jacob Perry, Jeff Roland, Keyanna Seville, Department of Chemistry

Faculty Sponsors: Drs. Thomas Manning and Michael Holt, Department of Chemistry

Scientific instruments are composed of a host of parts such computer boards, optics, magnets, lasers, detectors and magnets. 3D Printing is taking shape as a technology that can provide in house custom built components in less time and expense than seeking a specialty shop to construct them. This trend is likely to grow in the coming years so introducing it in an academic environment is important. In this presentation, students will present models of four instruments that were designed on Google Sketch (a Computer based design program), sent to Makerbot (software to finalize the design and control the 3D printer) and then print the parts needed. The instruments constructed include a Michelson-Morley interferometer, a Liquid Chromatography-Mass Spectrometry (single quad and electrospray ionization), A Czerny-Turner monochromator with a hollow cathode lamp source and a photomultiplier tube detector, and a matrix assisted laser desorption ionization-time of flight mass spectrometer (MALDI-TOF-MS). Students will present their models and discuss the pros and cons of 3D Printing from their perspective.

A 24 HOUR EXPERIMENT TO EXAMINE CHEMICAL, PHYSICAL, AND BIOLOGICAL ASPECTS OF CYCLES IN THE OCEAN

Tabbitha Beckens, Ivana Domljanovic, Morgan Herrington, Kaylee Higginbotham, Melvin Johnson, Tysheon McGreggor, Khatiga Nasir, Alesia Neloms, Chelsie Northcutt, Lance Perry, Marissa Reyes, Jennifer Rivera, Marc-Edwin Saint-Louis, Shacore Smith, Amber Trice, Jamie Wilson, Brit Butler, Tess Baker, Sydney Plummer, Kelsey Johnson, Department of Chemistry

Faculty Sponsor: Dr. Thomas Manning, Department of Chemistry

Ocean currents and tides can play a tremendous role in influencing a range of chemical, physical and biological parameters. In these experiments, students run a 24 hour lab that examines a range of parameters such as nitrate, phosphate, specific gravity, dissolved oxygen, pH, temperature, tide height, conductivity and refractive index and correlate these measurements, made every few minutes with each other and with different organisms identified. Underwater cameras are used to monitor a range of invertebrates, such as sessile sea squirts and current followers such as jellyfish in a pass on Summerland Key located in the Florida Keys. These parameters can have different origins; for example nitrates leaching into the Florida Keys National Marine Sanctuary from the sugar plantations located in the Florida Keys are one potential source; and the production of nitrates as part of nitrogen cycle by nitrifying bacteria is another. In addition to the specific measurements, correlations among the different parameters are sought to begin to understand some dynamic aspects of the marine environment.

CALIBRATED OXIDATION POTENTIALS OF CAROTENOIDS CORRELATED TO SCAVENGING ABILITY TOWARD FREE RADICALS IN A FENTON REACTION

Jeffrey Roland and Wesley Potter, Department of Chemistry

A. Ligia Focsan, Department of Chemistry

In order to more precisely compare data for different carotenoids reported in different electrochemical experiments, calibration of oxidation potentials versus the potential of ferrocene/ferrocenium redox couple is necessary. However, calibration against ferrocene has not been reported in many of the published electrochemical studies of carotenoids. We performed a ferrocene test for β -carotene, canthaxanthin, apo-carotenal and astaxanthin which established a reference point (0.44V vs. SCE). All oxidation potentials have been then standardized to the potential of ferrocene of 0.528V vs. SCE given in a previous study. By plotting our oxidation potentials of the carotenoids a more precise correlation with their measured scavenging ability toward \cdot OOH radicals generated in a Fenton reaction is expected.

CYCLOADDITION REACTIONS OF NITRILE OXIDES AND DIENES

James Connor Lord and Cody Phillips, Department of Chemistry

Faculty Sponsor: Dr. Jenny M. Baxter Vu, Department of Chemistry

The construction of complex, versatile molecules from unsaturated hydrocarbons, abundant in petrochemical feedstock, is highly desirable. Cycloaddition reactions of 1,3-dipolarophiles with mono-unsaturated olefins are well documented and have proven to be a robust method for converting readily available petrochemicals into valuable synthetic intermediates. While cycloaddition reactions of 1,3-dipolarophiles with dienes has also been reported in the literature, the full potential of this transformation has not been exploited. This work focuses on the [2+3] cycloaddition reaction between various nitrile oxides and isoprene and determining the effects of electronics and sterics on both regioselectivity and reactivity. Although the current work only discusses the results of the cycloaddition reaction itself, efforts toward converting the products of these reactions into biologically active molecules will be the focus of future investigations in our research lab.

DETECTION OF NITRIC OXIDE FROM ENDOTHELIAL CELLS USING CHEMILUMINESCENCE FROM THERMOSTABLE LUCIFERASE

Andrew Mock, Department of Chemistry and Natalia Stevens, Department of Biology

Faculty Sponsors: Dr. Jenifer Turco, Department of Biology; Dr. Yakov Woldman, Department of Chemistry

Nitric oxide (NO) is a small signaling molecule that plays a major role in a wide range of physiological processes. NO production in endothelial cells can be induced by shear stress and leads to vasodilation by causing smooth muscle relaxation around blood vessels. Decreased NO production has been linked with several pathological cardiovascular states. Monitoring NO production proves challenging due to the concentration and reactivity of NO in a physiological environment. Recently, a chemiluminescence system was developed to detect and quantify NO in an aqueous solution by utilizing its ability to increase the conversion of guanosine triphosphate to inorganic pyrophosphate and guanosine 3', 5'-cyclic monophosphate (cGMP) by soluble guanylyl cyclase (sGC). By utilizing ATP sulfurylase, ATP can be produced using the resulting inorganic pyrophosphate and react to produce a measurable quantity of light using a reaction catalyzed by luciferase. The purpose of this study is to utilize a thermostable, recombinant luciferase (GSTR) in the aforementioned chemiluminescence system to detect NO produced by endothelial cells under simulated shear stress and quantify NO production using an NO donor (DETA NONOate).

DEVELOPING A COMPUTATIONAL ANTIBIOTICS TEXTBOOK FOR PUBLICATION ON AMAZON KINDLE

Andrew DeLong, Jared Harris, Brittany Larcart, Chandler Massey, Chelsie Northcutt, Somuayiro Nwokike, Oscar Otieno, Harsh Patel, Mehulkumar Patel, Pratikkumar Patel, Eugene Rowell, Brandon Rush, Marc-Edwin Saint-Louis, Amy Vardeman, Felicia Woods, Department of Chemistry

Faculty Sponsors: Drs. Thomas Manning and Giso Abadi, Department of Chemistry

In this presentation students will present a preliminary draft of a text (approximately 300 pages long) that focuses on approximately one hundred and fifty antibiotics. The antibiotics chosen, of the thousands that has been developed, were chosen based on having survived clinical trials and being brought to market at some point in the past century. Following a specific format, students provide two pages of data on each antibiotic. Part of this project is to use different computational methods to calculate biological, chemical and physical parameters that can be correlated with the drug's efficacy. In addition, other important values that give insight to the drug's effectiveness and availability such as its production method and its Minimum Inhibitory Concentration are taken from the literature and incorporated. The structures constructed and calculated by the students are also uploaded to a website. The book on Amazon-Kindle will contain the password needed to access the site and download the structures. A final version of the text will be available to buy by May, 2014.

ENZYMATIC RESOLUTION OF CHIRAL ALCOHOLS

Steve D. Watts and Jesse Prince, Department of Chemistry

Faculty Sponsor: Dr. Jenny M. Baxter Vu, Department of Chemistry

Chiral alcohols serve as important building blocks toward the synthesis of a variety of biologically active natural products and synthetic pharmacophores. Finding environmentally friendly and economically viable routes for the selective construction of enantiomerically pure alcohols remains a challenge to the organic synthetic community. In addition, current methodologies for the asymmetric synthesis of alcohols are not suitable for adaptation to undergraduate teaching labs. Therefore the goals of the work presented herein are threefold: 1) develop a method for the selective hydrolysis of chiral esters from cheap natural sources, 2) explore the scope and limitations of this reaction methodology, 3) and develop a reaction that is suitable for implementation in an undergraduate laboratory course. This work focuses on subjecting two substrates, one is a chiral secondary alcohol and the other is a chiral primary alcohol, to enzymatic hydrolysis.

METAL ORGANIC FRAMEWORK MATERIALS FOR CONTROLLED DRUG RELEASE

Somuayiro N. Nwokike, Department of Chemistry

Faculty Sponsor: Dr. Tolulope O. Salami, Department of Chemistry

The advent of the ease of design and synthesis of functionalized and tunable porous materials has led to several novel applications. The materials typically find uses in catalysis, ion exchange and drug delivery just to mention a few. Our recent focus is on a new class of porous material, metal organic framework (MOFs). These compounds are synthesized via self-assembly of metal ions or clusters as metal centers with bridging ligands as linkers. The advantages of these materials include the ability to control pore size and shape, by choosing the appropriate linkers. Recently we have been studying the use of these materials in drug delivery. The study includes loading molecules into the pores of various MOFs and studying the release mechanism triggered by pH change. Our poster will focus on some of our preliminary results.

MODULAR BUILDING BLOCKS FOR MOLECULAR ELECTRONICS AND ENERGY RESEARCH: PREPARATION OF ORGANOIMIDO-FUNCTIONALIZED POLYOXOTUNGSTATES

Matthew May, Department of Chemistry

Faculty Sponsor: Dean C. Duncan, Department of Chemistry

Molecular organic/inorganic hybrid complexes are of interest as modular building blocks for new materials whose structural and functional operating features span from the nano-to-meso lengthscales. This interest stems from the ease with which such molecules can be interconnected to form supramolecular/polymeric assemblies *via* the carbon-based (organic) framework and from the wide variation in functional properties that emerge by incorporating elements other than carbon across the periodic table. In previous work, the Duncan group has established a synthetic route towards preparing such molecules by functionalizing the surface of molecular tungsten oxide complexes (polyoxotungstates) *via* replacement of a surface oxide ligand, O^{2-} , with an isocharged phenylimido group, $C_6H_5N^{2-}$. The work presented here builds on this effort by reporting the successful syntheses of new substituted organoimido (RN^{2-}) derivatives of formula, $\square-[PW_{12}O_{39}(NR)]^{3-}$, as well as preliminary work on extending the organic framework *via* Sonogashira C-C coupling reactions.

NMR, MALDI-TOF-MS, FT-ICR AND CELL LINE STUDIES OF COPPER-ANTIBIOTIC COMPLEXES

Rachel Mikula, Aaron Calvin, and Hilary Lee, Department of Chemistry

Faculty Sponsors: Dr. Thomas Manning; Drs. Greg Wylie and Dennis Phillips, PAMS and NMR Labs; Dr. Ben Bythell, National High Field Magnet Lab

In recent years, the bacterium responsible for tuberculosis has been increasing its resistance to antibiotics resulting in new multidrug resistant mycobacterium tuberculosis (MR-TB) and Extensively drug-resistant tuberculosis (XDR-TB). In this study we use several analytical technique including NMR, FT-ICR, TOF-MS, LC-MS and UV/Vis to study the copper-capreomycin complex. Once this structure was understood, the NIH-NIAID tuberculosis cell line for several Tb strains (including antibiotic resistant strains) were tested against up to seven variations of the copper-capreomycin complex. In summary, copper improved the efficacy of capreomycin against Tb up to 250 fold against drug resistant strains of Tb.

NMR, FT-ICR, TOF-MS AND CELL LINE STUDIES OF NOVEL COPPER-CANCER DRUG COMPLEXES

Aaron Calvin and Mallory Shannon Clark, Department of Chemistry

Faculty Sponsors: Dr. Thomas Manning; Drs. Greg Wylie and Dennis Phillips, University of Georgia, Department of Chemistry; Drs. Ben Bythell and Fengli Zhang, National High Field Magnet Lab

A number of delivery agents such as proteins, liposomes, micelles, and nanoparticles, are utilized for transporting pharmaceutical agents in a physiological environment. This paper focuses on the use of the copper(II) ion and its potential role as a delivery agent for the taxanes and taxol coupled to a malaria drug. Nuclear magnetic resonance (NMR, ^1H , ^{13}C , ^{15}N), Mass Spectrometry (LC-MS, MALDI-TOF, FT-ICR) and computational methods are used to examine the structure of the complexes. The National Cancer Institute's benchmark 60 cell line panel is used to compare the efficacy of the copper-taxol and copper-taxol-hydroxychloroquin complexes to that of iron-taxol and pure taxol.

POLYMER MODIFICATION OF IRON(III) OXIDE NANOPARTICULATE FILMS FOR PHOTOCURRENT GENERATION

Aaron T. Calvin and Raymond G. Fontanez, Department of Chemistry

Faculty Sponsor: Dr. Linda de la Garza, Department of Chemistry

Iron (III) oxide (Fe_2O_3) nanocrystalline films are being pursued as materials for photoelectrochemical and photovoltaic applications due to the natural large abundance of iron. Also, Fe_2O_3 is a stable and environmentally friendly material. Using a dip coating method, conductive indium tin oxide slides (ITO) were coated with Fe_2O_3 nanoparticles synthesized from FeCl_3 by hydrolysis. Fe_2O_3 films were annealed under oxygen at 450°C for 1 hr. The annealed Fe_2O_3 slides photocurrent production was measured in a three-electrode photoelectrochemical cell before and after modification with 3,4-dihydroxyphenylacetic acid (DC). The high recombination rate of photogenerated charges in Fe_2O_3 yields a low photoconversion efficiency but enediol ligands such as DC block the electron traps in the nanoparticles of the $\text{Fe}_2\text{O}_3/\text{DC}$ films increasing the photocurrent production efficiency. $\text{Fe}_2\text{O}_3/\text{DC}$ films were further modified with a non-conductive form of polyaniline (emeraldine base, PANI) to extend the separation of photo-generated charges and thus yield enhanced photocurrents.

**REACTIVITY AT METAL OXIDE SURFACES: STUDY OF DEIMIDATION
REACTION KINETICS IN AN ORGANOIMIDO-FUNCTIONALIZED
POLYOXOMETALATE**

Jared Harris and Tysheon McGreggor, Department of Chemistry

Faculty Sponsor: Dean C. Duncan, Department of Chemistry

One of the aims of Duncan's research group is to prepare stable molecular tungsten-oxide complexes (MTOs) containing covalently grafted organic functional groups for potential applications in catalysis, photo-assisted catalysis, and as building blocks for a new materials chemistry based on molecular metal oxides. Preliminary investigations are presented here that address two key questions regarding this chemistry: (1) what factors promote the kinetic inertness ("stability") of organoimido-functionalized MTOs towards deimidation, *i.e.*, replacing the organoimido ligand, RN^{2-} , with isocharged oxo, O^{2-} , and (2) what is(are) the mechanism(s) of this reaction? This work is part of a broader effort towards understanding reactivity at solid metal-oxide surfaces by investigating surrogate reactions in soluble homogeneous molecular metal-oxides.

SILICA AS A MEDIUM FOR THE SYNTHESIS OF CHIRAL IMINES AND AMINES

**Merchant Brock, Jennifer Rivera, Camry Winford, and Gloria De La Garza,
Department of Chemistry**

Faculty Advisor: Dr. John T. Barbas, Department of Chemistry

We have continued our investigation for green and economical methods in the synthesis of chiral imines and chiral amines. We have synthesized several of these compounds quantitatively, in reactions between aromatic aldehydes having unique substituent groups, and primary chiral amines. These reactions take place in minutes on activated silica at room temperature, with or without solvents. Typically, 2 grams of activated silica are suspended in the minimum amount of dry ether or other solvent. To this suspension, equimolar quantities (2×10^{-3} mol) of an aldehyde and a chiral amine are added successively, while stirring. Formation of the chiral imine is complete in a few minutes as confirmed by GC-MS. At this point, the imine can be isolated or converted to the amine, as desired. For the reduction step, the suspension is cooled in an ice bath, followed by the addition of 0.15 g of sodium borohydride. To this mixture, a few drops of water are added periodically and stirred briefly. Completion of the reduction to the amine is monitored by GC-MS. The products are extracted from silica with dry ether, dried over anhydrous sodium sulfate, and the solvent removed under vacuum. The products are weighed and analyzed by IR, GC-MS, proton and C-13 NMR, and polarimetry.

STIMULATING THE IMAGINATION: A GREEN TECH, DEEP OCEAN RETRIEVAL SYSTEM

Cody Moncrief, Eric Haas, Elizabeth A Atkinson, Donna F Law, Brett Little, Chelsie D Northcutt, Ryndell Langford, Hilary F Lee, Gregory A Jackson, Nicholas Fight, and Jenna L Lippincott, Department of Chemistry

Faculty Sponsors: Drs. Thomas Manning and Brian Gerber, Chemistry Department

Students developed (patent pending) and built and test a device that submerges to the bottom of a water-based system and resurfaces after a period of time. The reaction of calcium metal and water generates hydrogen gas, which lifts the container from the bottom. Compacted salt is used as a buffer to delay the reaction between the calcium metal and water. The reaction time can be varied from seconds to hours by adjusting the salt ratio (NaCl, NaHCO₃ tested here) and density. Its fuel could be considered a cost effective, green technology approach to propulsion. This prototype, which has no pressure differential, tether or electronics, may be used to sample the sediment of the world's oceans in a green, economical and reliable manner. The presenters will discuss the actual experiment, the patent application and the recently published paper in a peer reviewed journal on their project. This is a Noyce Scholar Project that is part of an internship.

SYNTHESIS, NMR ASSIGNMENTS, MASS SPEC and NCI CELL LINE STUDIES

**Rachel Robertson, Tysheon McGregor, Matt May, and J. Lance Perry,
Department of Chemistry**

Faculty Sponsors: Dr. Thomas Manning, Department of Chemistry; Drs. Greg Wylie and Dennis Phillips, University of Georgia, Department of Chemistry; Drs. Ben Bythell and Fengli Zhang, National High Field Magnet Lab

Bryostatin-1 has demonstrated medicinal activity against various types of cancer, HIV and Alzheimer's disease. The large structure is difficult to synthesize resulting in a current price tag of approximately 10M/gram. Our group has developed a synthesis that takes place in the ocean, dubbed pharmaceutical aquaculture, that produces different forms of bryostatin and iron(III)-broystatin. The iron(III) bryostatin structure produced in this lab was tested against the National cancer Institute's 60 cell line panel and it structure. Another bryostatin, dubbed Bryostatin 1A, is produced in bulk using this ocean technique.

SYNTHESIS OF BORONIC ESTERS ON SILICA, MOLECULAR SIEVES, AND ANHYDROUS SODIUM SULFATE

Anupa Gupta and Ingram Jermila, Department of Chemistry

Faculty Sponsor: Dr. John T. Barbas, Department of Chemistry

We have continued our investigation of “greener” methods for the quantitative synthesis of Boronic Esters. These unique compounds are important intermediates in coupling reactions using the Suzuki reaction. We have devised a simple, economical, facile method, for the synthesis of several Pinacol Boronic Esters having additional functional groups. Our method affords quantitative yields, and as an added bonus, it can be adapted to determine the purity of Boronic Acids. Typically, 2.0 g of activated silica, activated molecular sieves, or anhydrous sodium sulfate, were added to 10 mL of an ethereal solution of equimolar quantities (1.0×10^{-3} mol) of Boronic Acids and Pinacol, in a dry round bottomed flask. The flask was equipped with a stirring bar and a drying tube. The mixture was stirred for 15 minutes to half an hour at room temperature. It was then filtered, and the silica (molecular sieves, or sodium sulfate) was washed three times with 5 mL aliquots of ether. The ether extracts were then combined and the ether removed under vacuum. Yields of the Boronic Esters were quantitative. No byproducts were observed in any of the reactions we tried and no further purification was necessary. Products were analyzed by GC-MS, and proton and C-13 NMR.

VISCOSITY, CONDUCTIVITY, SPECIFIC HEAT, AND COLLIGATIVE PROPERTIES OF ALCOHOLS

Willis W. Brown, Aaron T. Calvin, Stephen I. Edwards, Bianca S. Farley, Haley A. Franklin, Rebekah E. Graham, Jermila S. Ingram, Tysheon Mcgreggor, Rachel T. Mikula, Andrew J. Mock, Alesia Nicole Neloms, Chelsie D. Northcutt, Mehulkumar P. Patel, Rachel L. Robertson, Frankie A. Stackhouse, Gregory R. Anzalone, Pamela L. Brown, Andrew V. DeLong, Anthony J. Fino, Alexis B. Garza, Ashley G. Humphries, Brittany S. Larcart, James C. Lord, Chandler B. Massey, Tyler L. Peterson, Michael J. Reaves, Jeffrey M. Roland, and Keyanna M. Seville, Department of Chemistry

Faculty Sponsors: Dr. Thomas Manning, Department of Chemistry, VSU and Dr. Aurora Pérez Gramatges, PUC-Rio

In past work our group developed a series of simple evaporation measurements that could be translated into measuring, correlating and understanding different parameters such as heat of evaporation, density, surface tension, viscosity and the mole fraction of a solvent. In this series of experiments involving alcohols, the rate at which a liquid moves through a capillary tube is correlated with a range of physical and chemical parameters. In any chemical education environment taking into account the economics of the solutions and equipment and correlating it with an appropriate theory and experimental level that is covered in a course such as physical chemistry is important to develop new exercises.

DETERMINING THE EFFECTIVENESS OF ELM ON RECRUITING MEMBERS FOR AN ORGANIZATION THROUGH SOCIAL MEDIA

Erin Dobbins, Department of Communication Arts

Faculty Sponsor: Dr. Michael Eaves, Department of Communication Arts

The objective of this research was to determine how the two elaboration likelihood model orientations are affected and respond to recruitment attempts from organizations through social media. Recent and relevant literature is reviewed in order to establish the role that elaborated likelihood model plays in social media and recruitment, as well as review any unsuccessful methods used in relation to the different elaboration likelihood model orientations. The research methods utilized are the survey method and the focus group method. The survey method collected data from 200 students, both male and female, across the Valdosta State University campus. The second method was a focus group consisting of six VSU students. The results of the research concluded that centrally oriented people are very responsive to recruitment through social media. It also concluded that social media is an effective way to communicate with college aged students.

ELABORATION LIKELIHOOD MODEL: HOW PERSUASION CAN BE UTILIZED TO ACCURATELY PREDICT AN UPSET IN THE NFL “AGAINST ALL ODDS”

Anthony DeFelice, Department of Communication Arts

Faculty Sponsor: Dr. Michael Eaves, Department of Communication Arts

The Super Bowl this year was the most viewed television program in history with over 150 million viewers worldwide, Seattle Seahawks versus Denver Broncos. Prior to the game there was a lot of controversy as to who is predicted to win, leaving many legal gambling operations with a very small point differential. Fans of the National Football League suggest the annual game is created in hopes of two of the best teams coming together to play one of the most competitive games of the year. To have one team dominate another leaves viewers in a variety of emotions; disbelief, outrage and majority surprised. The first part of this study is to determine the likelihood of a person thinking centrally or peripherally to determine the Super Bowl will in fact be a close game. Secondly, the factors that are evaluated when deciding who is the “underdog” or the team predicted to lose and how one is persuaded to think one team will win over another; an example would be the amount of ego involvement. Lastly, is there any correlation between the likelihood of a person thinking critically of whether a game will be competitive along with the factors of determining an unpredicted winner?

LINGUISTIC DIFFICULTIES OF INTERNATIONAL STUDENTS AT VSU

Grace Delacruz, Department of Communication Arts

Faculty Sponsor: Dr. Michael Eaves, Department of Communication Arts

The aim of this research study is to further understand the language difficulties of international students. This research study was conducted at Valdosta State University in which six different students participated, representing six different foreign countries. After reviewing the Intercultural Communication Theory, reading several different articles, and conducting in-depth interviews; there are in fact many difficulties that international students face in their everyday lives. These include language barriers, understanding American slang, making new friends, to adapting to a new country, etc. This research study gives a deeper, insight of what it is like to be an international student and gives voice to what they face as they transition and adapt to American culture.

COMPUTERIZED DETECTION OF LANGUAGE DELAY IN A CHILD WITH AUTISM SPECTRUM DISORDER

Chelsea Bartholomew, Department of Communication Sciences and Disorders

Faculty Sponsor: Dr. Jade Coston, Department of Communication Sciences and Disorders

The Language Environment Analysis (LENA) System is innovative recording and analysis technology used to identify the language patterns of young children. Recently, the LENA Foundation developed a screening method to accompany their LENA Pro devices in detecting early language delays in children with autism spectrum disorder. As part of the LENA Pro package, a Digital Language Processor records up to 16 hours of continuous speech. Once language samples are recorded, they are analyzed by computer software to quantify the amount of child speech production. Data presented in this poster include 30 children without known disabilities who were part of a research project at Valdosta State University. A child who exhibits behaviors consistent with autism spectrum disorder was also recorded and analyzed. This presentation will help examine the reliability of the LENA Pro package in detecting language patterns of a child with autism spectrum disorder as compared to children without disabilities.

DOES EXPRESSIVE LANGUAGE ABILITY CORRELATE WITH RATE OF COMMUNICATION IN YOUNG CHILDREN?

**Christina Matta, Hannah Anderson, Ashley Camon, and Jade Dampier,
Department of Communication Sciences and Disorders**

Faculty Sponsor: Dr. Jade Coston, Department of Communication Sciences and Disorders

Student researchers analyze audio samples to investigate expressive language acquisition in young children. Expressive language is defined as the ability to organize and convey thoughts into meaningful speech. Communication rate is the frequency of language occurrence. The Language Environment Analysis (LENA) system is a language sampling tool designed to provide information about child language production in natural environments. LENA consists of: a digital processor that records spoken language, children's clothing that holds the processor in place, and software that analyzes the recordings. LENA data and language transcription results for 29 children will be shared to reveal correlations between expressive language variables and communication rate. Child variables include the number of attempted utterances per minute, the number of meaningful utterances per minute, vocalizations per minute, mean length of utterance, and a computer-generated language score. The purpose of this study is to examine the relationship between expressive language ability and communication rate.

LONG-TERM MEMORY RETENTION OF COMMON WORDS SPOKEN IN HEBREW BY CSD STUDENTS

Hannah Elizabeth Leicher, Department of Communication Sciences and Disorders

Faculty Sponsors: Drs. Ruth Renee Hannibal and Crystal Randolph, Department of Communication Sciences and Disorders

Jewish Americans make up approximately 2.1% of the United States population. Statistics show that the elderly Jewish American population is increasing with health related issues (e.g., strokes) necessitating the services of a speech-language pathologist (SLP). Therefore, there is the likelihood that an SLP will work with an individual who speaks Hebrew or Yiddish. The purpose of this study is to assess Communication Sciences and Disorders students' long-term memory retention skills of seven common words and phrases spoken in Hebrew.

STUDENTS' KNOWLEDGE OF BRAILLE LITERACY IN THE FIELD OF COMMUNICATION DISORDERS

Heather Ward, Department of Communication Sciences and Disorders

**Faculty Sponsors: Drs. R. Renee Hannibal, Crystal Randolph, Corine Myers-Jennings,
Communication Sciences and Disorders, and Dr. James G. Archibald, Curriculum
Leadership and Technology**

The Speech-Language Pathology Scope of Practice states that Speech-Language Pathologists are required to provide services that facilitate a child's literacy development as well as communication development because of the established link between reading and writing ability and a child's communication abilities. Literacy among children who are blind or visually impaired lags behind the literacy of their sighted peers consequently negatively influencing their communication skills. The purpose of the study is to investigate speech-language pathology students' knowledge of braille literacy and how it applies to communication disorders.

THE EXPLORATORY BEHAVIORS OF NORMALLY DEVELOPING CHILDREN

Shaddái Nicole Wiggs, Department of Communication Sciences and Disorders

**Faculty Sponsor: Dr. Matthew Carter, Department of Communication Sciences and
Disorders**

The purpose of this study was to examine the visual and body exploratory behaviors of normally developing children. The study required the use of advanced technological equipment designed to detect specific eye gaze fixations in addition to eye gaze durations. This study is a part of a larger study which will compare these exploratory behaviors to a sample of age-related children with a diagnosis of autism. It has previously been demonstrated that children with autism have a tendency to focus on one portion of a large area versus exploring the area in its entirety. However, no study has quantified the level of focus that is maintained on those objects as indicated by eye gaze.

BIBLE IN EDUCATION

Eric Brantley, Math Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

The use of the Bible has been one of the issues in education for centuries, but there has not been quite an answer to that issue. When education originally came into play, the purpose was to educate young men on the ways of the Bible. The mission of the schooling system, which was not totally coherent, was to provide Bible studies so that the young generation would grow up to be devout Christian citizens and would follow the ways as set forth by the Bible and the interpretation of their community. In 1963, the Supreme Court decided that prayer in school is unconstitutional. Because of this ruling most teachers play it extremely safe and avoid the subject altogether. Others argue that the bestseller of all time is a great literary work and has a place to be discussed in the realm of education and history, both subjectively and spiritually.

BULLYING

Cody Darr, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Bullying is not just a physical or emotional state of action it is also mental. There are many forms of bullying, especially in today's day and time. Bullying can come from words spoken, actions taken, such as fighting or aggravated assault even all the way to bullying across social media and via technological means. Students in schools may bully for many reasons. They bully because they are jealous of their fellow classmate, they bully because they are unhappy with themselves or they may just bully because they honestly have nothing else better to do.

My proposal is to bring outlets for students who may have been a victim of bullying and even the bullies themselves. Solely taking a student out of the classroom or out of the school completely does not alleviate the problem. These students need help and guidance and through after school programs and specially designed classes, I hope to teach these students how to express themselves in a more healthy and productive way.

CHILD ABUSE IN THE US

Keegan Puia, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Many Children have been abused in America. As a teacher, I can only assume this creates numerous problems in the classroom. The abused child may lack social skills or lack basic necessities (such as pencils and paper) that other kids have. This child will also lack the support system needed at home to help with problems that arise in the classroom. My goal is to find a way to include a previously abused child in my classroom. If one of my students is currently being abused, then the law must become involved. However, it is likely at some point in my teaching career that I will have a *previously* abused child in my classroom (meaning the student is now adopted into another family or in foster care). I will find a way to include all students during class activities that allow each to showcase their best qualities, so that all students become aware of their own talents and abilities and will not hold themselves higher than each other.

CHILD ABUSE IN THE US

Rebekah Swilley, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

There are on average 5 children that die every day due to child abuse. Before reaching the age of 18, 1 out of 3 girls and 1 out of 5 boys will be sexually abused. In 2010, 1,537 children died of abuse or neglect. 79.4 percent were under the age of 4 and 47.7 percent were under the age of 1. The number of child abuse incidents reported is around 3.6 million and the number of children involved in those reports is around 6 million. The number one goal is to stop these unthinkable acts toward children. Schools need to focus on implementing new prevention efforts such as personal safety programs to provide children with an outlet and to lower the level of stress in the home. The perpetrators must be held accountable for the crimes and these children abused must receive justice. This research is to explore the preventive ways for child abuse.

“CHIRAQ” – THE FALLEN CITY OF CHICAGO

Lorenzo Washington, Health and Physical Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Chicago has long been known as the fallen city of “Chiraq” filled with young criminals and gang related crimes, sex, money and drugs. These young men all end with murders at a high rate of 471 a year since the year of 2009. The mayor of the city has proposed a peace act by taking over the city protesters and city hall meetings to stop this violence, and that act has lead the city to the name of “Chiraq” –the 2011 murder rate in this city was much higher than the warriors killed in Iraq. My proposal to stop this is to recruit more police to go first hand to clean up the drug cartel that is always the major cause of the issues. My research is to get this under hand and raise awareness all over the United States.

“DEFORESTATION’ – ENVIRONMENTAL ISSUE

Stephen B. DeFelice, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

The environmental issue in my research is deforestation which I have been witness to first hand through my Army career. “Deforestation” destroys natural habitats and diminishes natural resources. My goal is to minimize deforestation to hold big companies and land owners to replenishment of this resource.

METHODS:

- 1) Minimize the expansion of cities by building high rise buildings to house increasing populations.
- 2) Hold land owners responsible for planting new forests.
- 3) Hold big logging companies responsible for planting new forests.
- 4) There are also new technologies emerging such as hydroponics and aqua-ponics that can increase yield and production for new forests.

CONCLUSION: many people rely on forests for natural resources through hunting, fishing and trapping. Once all the trees are gone they are gone. Until I conduct further research I cannot tell you how long it will take for another generation to see the trees and forests we see today.

DR. MARTIN LUTHER KING, JR. – MY HERO

Brynn Rone, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

My research is on Martin Luther King Jr. To me, Dr. King is one of the most inspiring human beings to live on the earth. His philosophy has personally affected me because throughout my life I have encountered racism, racial, profiling, and prejudice towards people of color. My paper will bring light of Dr. King's achievements, and will help others to understand his life, and his life goal. Dr. King still lives in our memories of him, this is the reason that I feel I'm obligated to write about his life. Dr. King revealed a sense of ambition and consistency on his goal but are still invisible to the world since his death. His stride for a difference gave people of color hope and courage. There is a lot of information about Dr. King; whereas many people do not realize his great influence from his character and his personality.

DROPOUT NATION

DeJuan Green, Health and Physical Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

There is an increasing dropout rate at the high schools in the US. When I get into the research of this problem, I get more in depth of the reason why students feel "school is not for me." Diversity and background play a big part of this issue. The black males and Latino students suffer in this situation. Students from these ethnic groups generally come from low income families. When a student feels they're not as smart as other persons around them and also cannot afford the help to enhance their knowledge and learning skills, these students become discouraged about their future. Most students begin running on the streets and end up getting into the jail. Our society should recruit more passionate faculty in our high school systems to help tutor and counselor those at-risk students. This will help build the students' confidence and keep these students back to school success.

GYPSIES THE WANDERING PEOPLE

Stephanie Hastings, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Gypsies showed up in medieval Europe seven hundred years ago, they are said to originate from northern India. No one really knows why they all left, but they were not welcome in other countries. They moved around a lot and developed a wandering lifestyle. Today, Europe is now having ten to twelve million gypsies. Gypsies are not just a single group, there are a lot of different groups throughout Europe. They all tell the story of their history differently and they have different faith, not just a single faith. Some examples of the faith these different groups practice are Protestant Travelers, Anglican Gypsies, and Baptist Roma. They have a strong focus on their family and the community. Gypsy parents do not like their kids learning non-gypsy ways. Gypsy children only go to school till the age of ten or eleven because of this.

HOMELESS PEOPLE IN THE US

Halie Imler, Health and Physical Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

My research is on the homeless people in the US. As an educator, I want to talk about the population of homeless people and the possible conditions that they live in. It is important for us as educators to know about homeless people in case some of our future students are going through a hard time. In this presentation I am planning on discussing the different living options for the homeless. Some examples of these are shelters, hotels, and even tents. There are a number of different reasons why a person or family could be homeless. I believe that learning about this will help my peers and I have a different outlook of some of the homeless people in America. As a teacher you might have a student that family does not have a permanent home and it is important that we know how to handle this situation.

IMMIGRANT WORKERS IN THE US

Joshua Abbott, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Thousands of immigrants work very hard to produce food, clothing, and various things necessary for our life in the US. Many of them are poor and are treated very badly. Most people do not understand the nature of their cultures nor want to understand them. These immigrants come from many different cultures and various religious backgrounds. They come here to work, legally and illegally, in hope to better their lives. Most immigrant workers do not mean to take our jobs, but simply just want a way to provide for their families. Many of them, contrary to popular belief, are not eligible for government aid, and must pay taxes to which they can file no returns. This research is to explore the diversity of the immigrant works, and through cooperation and cultural interactions, people can learn to accept immigrant workers and appreciate their labor for this country.

JAZZ MUSIC

Erin Walsh, Music Department

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Jazz music was developed in the 1920s, and it has created an entire new culture of diversity in music and in the history of the US. My research is to show how jazz developed America's history, and how it competes musically with the respected classical music that our European forefathers gave to us. Unlike classical music that is performed very rehearsed and synchronized, jazz music uses a wide variety of improvisations through their knowledge and understanding of music theory and life experiences. It is also not only but a century old, and widely accepted all over the world. When it comes to diversity, history shows that jazz music developed from African American experiences in America. This is why most jazz players throughout the years are mostly African American. The birthplace of jazz in America was New Orleans where jazz evolved from slave work songs, spirituals, blue grass, and brass band music.

PEOPLE LIVING IN POVERTY

Ashley January, Early Childhood and Special Education

Faculty Sponsored: Dr. Lucia Lu, Early Childhood and Special Education

Poverty is a state of privation. The common measure of poverty in the U.S. is the “poverty threshold” set by the government. In 2012, the poverty rate was 15.0%, holding constant since 2010. Over 46.5 million Americans live in poverty, with Blacks and Hispanics leading that category. Poverty causes many social issues such as hunger, homeless, child abuse, medical problems, developmental problems, educational disparities, etc. America holds dear the promise of self-improvement and pulling ourselves up by our own bootstraps through work. The unfortunate side effect of this ideal is that we tend to disparage the poor, criticizing them for not working hard enough. America as a nation has to come together to address the many facets of poverty by creating nonbiased opportunities for them. Community service and outreach programs are proactive efforts that will make citizens aware of the issue and are willing to solve the problems.

PEOPLE OF VANITY

Allante Fairley, DEAF Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

“Vanity- excessive pride in one's appearance, qualities, abilities, and achievements.” Dictionary.com attempted to put this blurred word into context. At what point can a person be deemed to have “excessive” pride in their own works? Where can we draw the line between self-satisfaction and narcissism? More importantly, have we become a generation that embodies this negative quality? But the question still remains; have we become a people of Vanity? In my research I want to explore how technology and popular culture have shifted range of what is important. Do we forgo our attention on global issues such as environmental damage and political turmoil for information on how to increase our own personal image and how we are physically viewed by others? Both sides of the argument are stacked for and against the idea that we are in fact a vain culture, and I intend to explore the line between vanity and progressivism.

SO WHAT IS LINSANITY?

Larry Emery, Health and Physical Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

The 2012 craze was brought on by former Harvard grad and NBA D-Leaguer, Jeremy Lin. After going undrafted out of college Lin spent time in the NBA D-league. Eventually the 2012 NY Knicks picked up the rising athlete to fill the spot of habitually injured Baron Davis. When given the opportunity to play, the young star excelled to the point of becoming a national icon. The problem with this whole situation is that nobody ever thought that an Asian American could ever play basketball and actually be a factor in doing it. It was so many racial factors that were involved in Jeremy Lin's time of stardom. Nobody really thought that he could play basketball. He is a good player that really knows how to play. And nobody ever gave him a chance to actually show his skills. But the one chance made everybody in the world know who he was.

STUDENTS OF HANDICAP IN SPECIAL EDUCATION

Caitlyn Calhoun, Special Education, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

My research topic is on students of handicap. I am very interested in this topic because I am studying to become a special education teacher. Students of handicap are not treated like every other student; sometimes they need a little special attention but most of the time they should be treated just like everyone else in the school. These students are often not in the same classes as normal students and don't have the same opportunities as the other students causing them to be left out when they can usually sit in regular classes with an aid. Ultimately, I would like my research to show that many students of handicap can function just as well in a normal classroom setting and maybe even thrive. Overall, I believe this would be in the best interest of the student and the school by providing them with diverse needs.

THE DIFFERENT VERSION OF THE GYPSIES

Julianna Westray, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

When people hear the word “Gypsies”, they think of thieves and prostitute that always wander in many countries. My research on Gypsies is a different version. This people were known for their music, dances, fortune telling, and great skills with horses, but were looked down upon. In history there were even mass killings of the Gypsies and are still labeled as nomads. These are stereotypes and prejudices against Gypsies. They were removed from their home in Egypt by another group of people, but gained some importance from people in authority along their way to find another home because they had no one else to help except the Pope who granted them a safe passage across his land. The Gypsies were very intelligent and musically inclined people that followed their own walks of life with their customs, language, and religion, but everywhere they went they were looked down upon for all they celebrated.

THE IMAGE OF AFRICA

Tracy M. Powell, Early Childhood and Special Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

Across the continent of Africa, many of the images produced in the media are negative. misleading and inaccurate, it is based on the modern mass media’s need for sensational and unfocused coverage of events” (Bula, 2002). When looking at the negative images of Africa in the media, one would think that the entire continent is poor, desolate, dirty, and in constant civil unrest. According to the Africa Files, “the negative stereotypes, inaccurate assumptions, and western perspectives result in” the world’s contrived view of Africa. On contrary, the continent is a place filled with precious resources, which are the people and the land. Matter of fact, Africa, like any other continent in the world, has different levels of social economic statuses, poverty, and unrest. Even though, it is not all negative. This research is to provide an understanding and a sense of humanity through my life experience in Ghana and Egypt.

TIGER MOMS

Mariah Hollis, Music Education

Faculty Sponsor: Dr. Lucia Lu, Early Childhood and Special Education

As children in schools across the globe are given standards to meet the school criteria, many parents hold their children accountable for reaching goals that may even seem unreasonable at times. “Tiger Moms” are those who are not satisfied with their children’s academic performance except all "As". Tiger Moms go beyond their call of duty to provide support for their children's education by scolding and punishing children for falling short of various strict academic goals. To some, this is harsh treatment; however, this type of life is simply reality for other children. Performing well academically for children of Tiger Moms is a result of fear of disappointment or punishment that would occur in the event that they fail to meet the standards set by their strict Tiger Mom. The pressure that some students work under may lead to emotional stress that they cannot endure in the learning process.

WHO ARE THE TAINO PEOPLE?

Toi Allen, Early Childhood and Special Education

Faculty Sponsored: Dr. Lucia Lu, Early Childhood and Special Education

In the class, we discussed the Taino people. But who are the Taino people? The Tainos were one of the Arawak peoples of South America until Spaniards arrived in the Bahamas in 1492. Through disease, sexual violence, warfare and harsh slave labor the Taino people were wiped out to a low population of less than 500. Nearly all of the Taino people had disappeared by 1535 causing the culture to become extinct. In 1864, the last pure blood Taino died. Yet in countries such as the Dominican Republic and Puerto Rico a vast number of people claim to be Taino. So the new question is, are the Taino still around or are they as a people truly extinct? The answer varies when asking different people. Through reading, I believe that pure blood Tainos are extinct but descendants through Taino and Spanish relationships are still around.

A HISTORY OF POMPEII AND PAPA BECK

Jessica Jarrell, Department of English

Faculty Sponsor: Dr. Deborah Hall, Department of English

I wrote this creative non-fiction essay as a way to fully realize my loss. In May of 2013, my maternal grandfather, James Beckworth or Papa Beck, died of leukemia. He was a humorous, vibrant character, but the disease took his lively spirit and legendary voice within a month of his diagnosis. The eruption of Mt. Vesuvius in 79 AD is used as bookends to this essay. It left the people of Pompeii captured in ash, standing as they did in their final moments. The volcano, like death, is an outside force that transcends man's control. Three specific moments in my life are included in this essay: the days before my grandfather's death, the day of his death and the day of his funeral. The song "Pompeii" by Bastille is used because it brings waves of loss like volcanic lava, leaving me hardened and standing still like the people of Pompeii. However, sometimes I go back in time and remember what Papa Beck and Pompeii felt like before everything changed permanently.

WHY I WRITE

Brooke Mckinney, Department of English

Faculty Sponsor: Dr. Deborah Hall, Department of English

In this video essay, I recollect experiences and memories revealing the relationship between life and death, including a fateful anatomy class, one which ultimately shaped my literary body of work. What began with an interest in science and the external world culminated in an even greater interest in the internal world of poetry, especially the anxieties of the modern writer who experiences the external world, internally. The internal worlds of Russell Edson, Sylvia Plath, and E.E. Cummings, then, greatly shaped and influence my work, especially this one. The video also examines the nature of time, reflected in the words and scenery alike. The entirety of the video was filmed in a graveyard, in black-and-white to emphasize the binary nature of life coexisting beside death. These images reflect the often stark nature of my world and my writing in the beauty of bones.

WHAT'S HAPPENING IN THE GYM?: AN ANALYSIS OF PHYSICAL EDUCATORS' TEACHING BEHAVIORS

Savannah L. Smith, Russell Woske, and Kevin Simpson, Department of Kinesiology and Physical Education

Faculty Sponsors: Drs. Matthew A. Grant and Sonya L. Sanderson, Department of Kinesiology and Physical Education

Researchers sought to compare physical education (PE) teachers' impressions of the PE faculty's teaching behaviors within their school in order to better understand practitioner's actions within the gymnasium. These behaviors included planning for instruction, implementing NASPE standards, and teaching actions of coaches. A convenience sample of physical educators (n=50) attending two regional conferences in Georgia completed a descriptive, Likert-like survey. Data were analyzed using descriptive statistical comparisons and an ANOVA. Results from the descriptive analysis revealed that most physical educators are practicing effective teaching behaviors except when assessing and evaluating (grading) students. ANOVA analysis only showed significance between the types of schools in which the physical educators taught; all significant results were found predictable. Therefore, physical educators seem to have a firm grasp on most effective teaching behaviors, standards implementation and curtailing the influence of coaches. Future studies could focus on physical educators' use of assessments and evaluative procedures.

A COMPARISON OF PROTOTYPE SMART CARS

Dalton Gurley, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

Smart cars are an emerging technology that allows the vehicles to be driven with little or no assistance from humans. It integrates inputs from RADAR, LIDAR, GPS and other sensors to give a vehicle the ability to be driven by computers. This paper explains the concept of computer aided driving and how smart cars work. We explore the major auto-manufacturers that are currently researching and creating autonomous prototype vehicles, including Google, BMW, Mercedes-Benz, Nissan and GM. We compare the key technologies from which these prototype smart cars are made, their features, performance parameters, limitations and costs. Google's self-driving car, its LIDAR sensors, and the 3D map it uses to achieve autonomous driving are studied in detail.

A SURVEY OF COMPUTER ASSISTED DRIVING

Willie Lawrence, Edward Lawson, and Kinard Thomas, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

This paper examines the advances of technologies in the automobile industry that are used to assist drivers. The rapid development of computer and communication technologies has a broad and deep impact on all aspects of our life, including our daily driving. In recent years, various technologies have been developed to allow drivers and vehicles to determine their locations on the map, to display rear views, to diagnose mechanic and electronic problems, to communicate with monitoring and emergency centers, and to prevent vehicle theft. However, most of these technologies have not been integrated together as a driving assistant system to help with tedious driving and to avoid accidents and life losses. This paper reviews various driving aid technologies including Global Positioning Systems (GPS), Radio Frequency Identification (RFID), OnStar, Cruise Control and Wi-Fi with an aim to analyze the need and feasibility to integrate them into a computer assisted driving system.

A SURVEY OF SELF-DRIVING CARS

David Robert Gully, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

This paper highlights the evolution of autonomous vehicles starting from the spark of an idea from over seventy years ago to the current state of the technology and the challenges that still face us. It begins with an introduction to “The World of Tomorrow” and moves right into practical accomplishments that began appearing in the 1970s. These projects spanning the globe made gradual advancements and were funded primarily by governments interested in transportation safety. It was not until recently that the technology has made leaps and bounds in part due to the backing and competition provided by the United States Department of Defense. The paper covers the results of the DARPA challenges, other recent advancements, and the technologies in use. It concludes with a brief outlook and a promise that the reality of self-driving cars is inching ever closer.

BAKING RASPBERRY PI

Sherri Burks and Alex Peterman, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Sudip Chakraborty, Department of Mathematics and Computer Science

The increasingly popular Raspberry Pi device (RPi) is an inexpensive hardware system that can support computing functionalities ranging from performing as a full multimedia center to functioning as a server. However, with physical space little more than a credit card and a \$35 cost, this device provides hobbyists and professionals the opportunity to experiment and has led to the development of a new, open source custom operating system – Raspbian. In this study, the RPi system and Raspbian OS are examined thoroughly. The information about its hardware and software are explained to facilitate understanding of the Raspbian and why it was designed specifically to run on RPi. Raspbian's performance using floating point operations is measured against comparable systems. After exploring the research benchmarks and hands-on observation, it is affirmed that RPi has the potential to be a pioneer in the next generation of the affordable computing industry.

CLUSTERING MARKETING DATA USING THE MAHALANOBIS DISTANCE

Max Wang, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Haiquan Chen, Department of Mathematics and Computer Science

Cluster Analysis becomes more and more popular in marketing, especially in online business. For market segmentation, clustering is used to group similar customers together in a market. Existing clustering methods are not doing well in modeling in terms of accuracy. The classical K-Means clustering algorithm is using the Euclidean distance measure. Market variables are after correlated. The Euclidean measure does not distinguish correlated and independent data sets. The Mahalanobis Distance measure takes correlation into account. The widely used parametrical normal model dese required data set to be symmetric. Many market data sets show the skewness, asymmetry, and fat tails. The mixture of normal fits the market data set well. It can handle data with skewness, asymmetry, and fat tails. In this study, we propose a mixture normal model based clustering algorithm. The Mahalanobis Distance measure is used in the K-Means clustering algorithm. This method provides a more accurate model for clustering.

E-COMMERCE FRAUD SCHEMES AND THEIR PREVENTION

Viktor Officer Graczyk, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

This paper introduces various types of fraud schemes and tools to combat them. The fraud schemes discussed include credit card fraud, false return claims, false order claims, and illegally buying and selling goods. Specific cases of e-commerce fraud and statistics from India are discussed to showcase how the issue is prevalent not only in first-world countries but also in developing nations like India. This paper also discusses various prevention technologies and tools including address verification service, card verification value, payment card industry compliance, fraud calculators, and device fingerprinting. All of these are highly utilized and effective tools that surveys have shown to be popular amongst e-retailers. The burgeoning market of fraud prevention is analyzed with statistics on effectiveness. The paper closes on the prospects of future e-commerce fraud prevention and the importance of such technologies in the next few years.

GROWTH OF USEFULNESS IN EDUCATIONAL APPS FOR MOBILE DEVICES

Lenzee E. Gillette, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

The great expansion and use of mobile applications (apps) has become an important portion of the digital era ever since they first began to grow in popularity in the mid 2000s. A now multibillion-dollar industry, it has captivated a wide base of consumers. One market segment of the large variety of mobile applications offered, and focus, is the educational market. Through extensive research, we explore the uses of educational apps, the demographics of their users, why these apps are needed, and how effective these apps have become. This knowledge will help us understand why educational mobile applications are important and how they attract a wide range of audiences but more specifically school age children. After analyzing the data gathered, we make several recommendations on the development and uses of educational apps. Finally, we draw some conclusions on the future of the market segment of educational apps.

LET ME GUESS YOUR MIND: USER ACTIVITY VISUALIZATION AND PREDICTION

**Travis Gibson, Sherri Burks, Robert Jenkins, and Randy French,
Department of Mathematics and Computer Science**

Faculty Sponsor: Dr. Haiquan Chen, Department of Mathematics and Computer Science

The local organization, the Greeting Service, was founded in 1956 to help newcomers in the areas including Valdosta, Adel, Hahira, Lakeland, Lake Park, Moody Air Force Base, Nashville, Quitman, and Tifton with their relocation by orienting them to local services and businesses that meet their specific needs. However, the existing services show insufficiency to meet the current needs. In this work, we designed and implemented a web-based data visualization and analysis software based on Google Maps API. Our proposed system is able to visualize local people's movement/relocation information geographically for further data analysis and predict their latent interests/needs based on data mining techniques, which enables the acquisition of more insight to local people's interests/needs for more personalized recommendations of various businesses and services.

SHAPING THE WAY WE CONSUME ENTERTAINMENT

Jovan Van Dyke and Ethan Rogers, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

Over the last few years, the consumer market of television and movies has changed drastically. There have been major advances in content delivery that involves streaming and mail-order DVDs. The two companies behind this move, Redbox and Netflix, have been paving the way for consumers to switch from the traditional markets of movie theatres, neighborhood movie rental stores and mail-orders DVDs to more comfortable, more convenient and cheaper ways to consume digital entertainment. In this paper, we study the two companies' history and perform a SWOT analysis to analyze the competitions between them. The recent strategies of these companies in digital content distribution are also discussed to predict where the two companies are heading and how such strategies will shape the way we consume entertainment in the years to come.

SURVEY OF WIRELESS TECHNOLOGY FOR NEAR FIELD COMMUNICATION

Taray Eady and Cameron Thomson, Department of Mathematics and Computer Science

Faculty Sponsor: Dr. Chunlei Liu, Department of Mathematics and Computer Science

Near Field Communication (NFC) is a wireless technology for transmission over short-ranges. Because of its ease of use, security and versatility, it has been included in almost all mobile devices being released today. Typical applications of NFC include contactless payment to replace various credit cards, building keys, subway passes and movie tickets. The technology is rapidly growing and various other markets have adopted the use of NFC chips and tags into their products, including appliances and automobiles, for device-to-device communications, data transfer, monitoring and automatic control. However, the use of NFC is still fairly new to many users and thus has had a rough start as a mobile payment system. In this paper, we will explore the many different uses of Near Field Communication today, security risk associated with using this technology and its future.

THE WICHMANN AND HILL GENERATOR AND FLOYD'S ALGORITHM: DETERMINING EFFICIENCY

Jacob Benoit, Department of Mathematics and Computer Science

Faculty Sponsor: Jin Wang, Department of Mathematics and Computer Science

Random number generators are commonly used in computer science and mathematics in order to help functions in games, research and other technology. They have been around for a very long time, and some are deemed insufficient by today's standards. One such example of this is the Wichmann and Hill Generator. This pseudo random number generator was created in 1982 to run on 16 bit computers and did its job exceptionally well. However, as time progressed and computers advanced, 16 bit computers have all but rotated out and the norm is now 32 and 64 bit operating systems. Using Floyd's Algorithm, the period, or length of the Wichmann and Hill Generator was found to be insufficient by today's standards and therefore in need of improvement. In order to improve it, the three generators it was comprised of would have to be revised. The only changes necessary were upgrading the three generator's numbers used for calculation to those more fitting for a 64 bit computer, which caused the Wichmann and Hill's revised generator to be one of the most efficient generators by today's standards.

AN ANALYSIS OF THE GENERAL PRACTICES IN THE PREVENTION OF SSIs IN THE USA AND SPAIN

Ja'Marrius Thomas, College of Nursing and Health Sciences

Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical Languages

This study aims to investigate the risk of SSIs (Surgical Soft Skin Infections) within general surgery in the USA and Spain. Specifically the study describes the general procedures associated with SSIs and nosocomial related infections. In addition, the study analyzes the impact of tertiary-care provided as a factor for increasing risks of SSIs. Data consists of general procedures of patient-care before, during, and after surgery, and inventories of the technology used for the procedures. Results show that there are specific measures that could assist practitioners in improving the quality of healthcare and potentially decrease SSIs. Furthermore, I describe differences in general procedures used in Cadiz, Spain and the risk of SSIs. Based on these findings I argue that surgical procedures should be categorized based on their level of complexity and patient (long-term vs. short-term) treatment to increase the quality and efficacy of the procedures.

AN ANALYSIS OF WAGES AND EXPENSES OF DOCTORS IN THE UNITED STATES AND SPAIN

James Miller, Harley Langdale Jr. College of Business

Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical Languages

In this paper, I first discuss the question of whether doctors are underpaid or overpaid. I examine this question by examining the external expenses that are acquired through the profession of being a doctor in the healthcare systems of the United States and compare these to those of doctors in Spain. The average salary of doctors in the United States is questionably higher than average salaries of doctors in Spain. This is an important topic that doctors and healthcare patients should take into consideration while looking for potential jobs or simply travelling abroad. To analyze these differences, I conduct a survey with multiple participants with healthcare employees and doctors in southern Georgia, US and Cadiz, Spain. The survey focuses on net operating income between doctors. I then compare the multiple expenses to average wages between the doctors in the two countries. Findings show that even though it is arguable that doctors in the US are paid more due to the high costs of liability that the United States healthcare system presents, a closer look at the business aspect of these wages and expenses should also be taken into consideration when interpreting this argument.

AN EXAMINATION OF SPANISH AND U.S. TEACHER BELIEFS REGARDING THE INSTRUCTION OF GRAMMAR IN THE FOREIGN LANGUAGE CLASSROOM

Hilaria Taft, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Victoria Russell, Department of Modern and Classical language

This research study compares teacher beliefs about language learning among foreign language teachers from Georgia and those from Spain. The review of the literature explores the benefits and drawbacks of grammar instruction, what techniques might work best for grammar instruction, and how grammar instruction affects target language use in the classroom. The overall research study employs Horwitz' (1985, 2007, 2012) Beliefs about Language Learning Inventory. This subset of the research project focuses on foreign language teacher beliefs and practices with respect to the different approaches to teaching grammar. This study explores the impact that grammar instruction may have on teaching methods and on students' learning outcomes and motivation for language study. The survey will be administered over the spring and summer semesters of 2014 and the results will be analyzed quantitatively. The research poster will present the review of literature, research questions, research plan, and the anticipated results.

AVAILABILITY AND DELIVERY OF HEALTHCARE BY FEDERALLY FUNDED PROGRAMS TO THE ELDERLY IN THE UNITED STATES AND SPAIN

Elise Dawkins, Department of Accounting and Finance

Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical Languages

This study investigates the availability and delivery of healthcare provided by federally funded programs to the elderly (65 and older) in the USA and Spain. Although these programs offer information about the healthcare available through their programs in different forms (e.g., printed brochures, online delivery), a large percentage of the elderly population is uninformed due to different factors (e.g., accessibility to the materials, comprehending information presented, understanding coverage and procedures). In this study, I first present an overview of the care available through these programs in the US and Spain. Then, I report on findings gathered through semi-structured interviews with five participants. The analysis conducted consisted of comparisons of information reported in brochures and online, and that understood by participants. I identify similarities and differences. Findings would help us to better understand how the information is understood. By analyzing misinterpretations, this study proposes mechanisms to improve the delivery of information.

COMPLIANCE OF LIFE CHOICES FOR THE INCAPACITATED

Joshua Murray, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical Languages

In the United States, there are established health care policies that are applied in the event of an individual's incapacitation such as living wills and power of attorney. Even though these policies reflect the individuals' requests for healthcare decisions, these policies have continuously dismayed doctors and families alike with controversial opinions of ethics. Furthermore, there have been cases reported in which doctors and health institutions refuse to honor advance directives or more extensively coerce patients into rescinding legal orders. In this study, I analyze the procedures for the enforcement of advance directives as reported in general information available to the public from healthcare facilities in the USA and Spain. Next, I interpret two cases of non-compliance based on federal and local policies to discover the outlet in which these health care providers failed to comply. Based on the findings, I propose alternative methods to help improve compliance.

¿CÓMO ESTÁ EL MÉDICO?: A COMPARISON OF THE QUALITY OF HEALTHCARE IN SPAIN AND THE UNITED STATES

Tamelonie Thomas, Langdale College of Business

Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical Languages

Healthcare reform has been a central topic in the political realm as policy makers have debated and dismissed for half a century over possible modifications to the healthcare system in the USA to increase access to quality healthcare. In this paper, I compare performance indicators of quality of the healthcare systems in the USA and Spain. Specifically, the study considers the determinants of the World Health Organization: disability adjusted life expectancy, speed of service, protection of privacy, quality of amenities, and fair financial contributions for treatments. First, I describe how quality is measured, and then I present data reported on performance indicators. Results show that the US might improve the quality of the healthcare system by improving their performance in each determinant. Analyzing these determinants allowed me to uncover ways to determine how healthcare systems can improve performance.

COMPARING THE AMOUNT OF TARGET LANGUAGE INSTRUCTION IN U.S. AND SPANISH CLASSROOMS

Kristina Wingate, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Victoria Russell, Department of Modern and Classical Languages

The purpose of this research study is to compare and contrast the following among foreign language teachers from Spain and from Georgia: (1) The amount of instruction that is provided in the target language; (2) Foreign language teachers' level of proficiency in the target language; and (3) Teachers' beliefs about language learning. The review of literature explores whether U.S. foreign language education teacher candidates are able to meet the minimum proficiency levels that were set forth by the American Council on the Teaching of Foreign Languages. A survey will be developed and administered to language teachers in Georgia and language teachers in Spain. Horwitz' (1985, 2007, 2012) Beliefs About Language Learning Inventory will be used as a foundation for the survey. The data will be analyzed quantitatively. The results will help us to better understand the effect that a foreign language teacher's proficiency has on his or her instruction.

DIFFERING SPEECH IMPEDIMENTS IN THE SPANISH AND ENGLISH LANGUAGES

Caitlin Elizabeth Reagin, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Grazyna Walczak, Department of Modern and Classical Languages

This poster examines speech-language disorders and practices within the Spanish and English languages. Speech-language pathology is the diagnosis, prognosis, prescription, and remediation of speech, language, and swallowing disorders. This poster demonstrates the differences in speech-language disorders between English-speaking children and Spanish-speaking children, as well as the various techniques to remedies these impediments. Some of the speech impairments discussed in this poster include specific language impairments (SLI) and stutters. Remedies for speech impediments include *Vocaliza*, an application for computer-aided speech therapy in the Spanish language. *Vocaliza* is a relatively new speech technology system that uses computer-animated games to work at three levels of Spanish language: phonological, semantic, and syntactic. In the United States alone, between six and eight million people suffer from some form of language impairment. It is important to know the research included in this poster so that these disorders may be correctly diagnosed and treated.

EXAMINING FEDERALLY FUNDED HEALTHCARE PROGRAMS IN THE USA AND SPAIN

Rebecca Clark, Department Of Biology

**Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical
Languages**

This paper examines and compares federally funded healthcare programs in the USA and Spain. In the USA, there are millions of Americans who are dependent on government health insurance programs in order to afford and receive medical attention when needed. In this paper, I first present overall descriptions of the two most important plans available in the USA: Medicare and Medicaid. Then, I examine the national healthcare system in Spain. I focus the analysis in the examination of the funding of low-income and elderly patients. I used statistical data reported by federal agencies to compare and contrast the quality and accessibility between the two governments. The findings serve to better understand how Spain's medical programs are federally funded, serve the general public without cost, and offer the same quality procedures as private offices.

FINANCIAL DUTIES POST DEATH FOR INMATES: A COMPARISON OF CADIZ, SPAIN AND LOWNDES COUNTY

**Katie McLoughlin, Langdale College of Business and Jordyn Holzer, Department of
Criminal Justice**

**Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical
Languages**

This study examines the differences of the financial responsibilities that exist for covering post death expenses of inmates at public hospitals. We first identify policies for financial responsibilities for public hospitals in Lowndes County in the State of Georgia, for unpaid costs of deceased inmates who die at the hospital. Using data collected from semi-structured interviews and analysis of information from the State and hospital, we provide a description of the procedures to follow. Next, we will describe the policies and legal proceedings for the handling of financial costs. Using the same methods, we examine how financial costs are handled in Cádiz, Spain. We conclude with a discussion of the implications of the financial costs to public hospitals, and the increase in costs of services for the general population.

INVESTIGATING ARTICULATION DISORDERS IN SPAIN

**Morgan Reynolds, Department of Communication Speech Disorders and
Sarah Kate Clark, Department of Modern and Classical Languages**

**Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical
Languages**

In the USA some common articulation disorders are omission, addition, substitution, and distortion errors. Even though these conditions have been studied in terms of the mainstream population, it is not completely clear how these are diagnosed in native Spanish speakers (NSS). In this study we investigated what constitutes an articulation disorder in Spain. Understanding the noticeable differences in articulation disorders in Spanish and English can greatly benefit Speech Language Pathologists by increasing the accuracy of the diagnosis of speech disorders. Furthermore, this can help facilitate the procedures used to teach English to NSS with articulation disorders. For example if a NSS has an articulation disorder in Spanish it may have an effect on their pronunciation of English. Articulation disorders could cause individuals to withdraw from speaking socially, which could lead to a communication disorder. Early intervention could prevent the disorder from becoming permanent or deteriorating.

MEASURES TO REDUCE PERIOPERATIVE RISKS OF OBSTRUCTIVE SLEEP APNEA

Blanca Hernandez, College of Nursing and Health Sciences

**Faculty Sponsor: Dr. Adolfo Carrillo Cabello, Department of Modern and Classical
Languages**

This paper aims at the identification, description, and comparison of measures anesthesiologists in the United States and in Spain implement to reduce perioperative risks of obstructive sleep apnea (OSA). OSA is characterized by a reduced and interrupted rate of respirations during sleep due to an airway blocked by collapsed soft tissue in the back of the throat. Conditions that could compromise a patient's airway while under anesthesia are a great concern for anesthesiologists and patients. This study focuses on the description of the process, materials used, and variations that exist among different healthcare facilities in both countries. Data consisted of interviews with practicing anesthesiologists from both countries, and findings reported in literature in the past five years. Results from the comparison of the procedures used in both countries offer important practical insights that might benefit anesthesiologists and patients suffering from OSA and their families.

THE NATIONAL STANDARDS AND FOREIGN LANGUAGE TEACHERS: A COMPARATIVE STUDY BETWEEN THE UNITED STATES AND SPAIN

Sarah Allison, Department of Modern and Classical Languages

Faculty Sponsor: Dr. Victoria Russell, Department of Modern and Classical Languages

This research study compares Spanish and U.S. teacher beliefs about foreign language learning and whether teacher beliefs impact instructional practices. The overall research project employs Horwitz' (1985, 2007, 2012) *Beliefs about Language Learning Inventory*, which will be administered to teachers in Georgia and in Southern Spain during the spring and summer of 2014. This portion of the project focuses on the differences in knowledge and application of the national standards between teachers in Georgia and those in Spain to find out how closely the teachers in each location align their curriculum with the standards. The teachers in Georgia are operating under the American Council on the Teaching of Foreign Languages (ACTFL) standards while those in Spain adhere to the Common European Framework of Reference for Languages (CEFR) standards. This poster will present a review of literature on the ACTFL and CEFR standards, the proposed research plan, and the anticipated results.

THE ROLE OF GRAMMAR INSTRUCTION AND ITS EFFECT ON TEACHING METHODS

Ashley Jacobs, Department of Modern and Classical Languages

**Faculty Sponsor: Dr. Victoria Russell, Department of Modern and Classical
Languages**

This research study will compare and contrast teacher beliefs regarding the importance that is placed on the instruction of grammar and the instructional methods that are used in foreign language classes in Georgia and in Southern Spain. Horwitz' *Beliefs about Language Learning Inventory* (1985, 2007, 2012) will be administered as part of a larger project and this subset of the project will focus on teacher beliefs about the value of grammar instruction, the role of grammar instruction in the foreign language curriculum, the percentage of class time that is dedicated to grammar instruction, and how a teacher's beliefs about grammar instruction may influence his or her instructional practices and assessments. Teachers' responses from Spain will be compared with those from Georgia to examine the similarities and the differences between these two groups. This poster will present a review of the literature on grammar instruction, a research plan, and anticipated results.

ALCOHOLISM: A SOCIAL EXAMINATION OF THE PRE AND POST-COLONIAL NATIVE AMERICAN

Angel Nicole Hardy, Department of Native American Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Native American Studies

The existence of alcohol within Native American communities pre-dated colonial influences. However, the use of alcohol as a daily beverage or as a means of coping with the effects of colonization changed the function of fermentation within Native American communities. This paper will examine the areas of economics, social institutions and medical issues that resulted from the change in the use of fermentation. The focus of this paper will be an examination of the historic and current effects of the non-sacred, non-medicinal usage of alcohol in Native American communities, including an examination of whether or not alcoholism is a greater issue in Native American communities than in the general American population.

EUGENICS AND NATIVE AMERICAN WOMEN: LEGAL GENOCIDE

Roderica Keisha Flucas, Department of Native American Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Native American Studies

This paper will examine the history of eugenic practices on Native American women as a means of population control. The controversial practices were condoned by both the American government and the Indian Health Services at various times throughout the 19th and 20th centuries. While the practices were officially stopped in the mid-1980s reports of coercive sterilization policies continue to be rumored in Native American communities. This paper will examine the eugenic practices focusing on the sterilization of Native American women in the 20th century. The paper will discuss the misrepresentation of procedures, controversial informed consent practices and the use of monetary incentives to advance the sterilization practices.

PRESERVED BUT NOT UNDISTURBED: THE NATIVE AMERICAN FEMALE

Linda Morrison, Department of Native American Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Native American Studies

Within the matrilineal Native American communities, women have held positions of Chief, Warrior and Medicine person. Many traditional communities were based on an egalitarian power structure which established women as both tribal leader and respected Elder. Colonization and post-colonization practices continue to portray Native American women as inferior to their male counterparts through the use of imagery including the celluloid princess, the sexualized savage and the crone. These designators have established a false image of Native American women as both venerable and deserving of negative treatment. This paper will examine the use of colonial and post-colonial imagery as one explanation for the Department of Justice report that shows Native American women to be statistically more likely to experience sexual assault than any other demographic of women in America.

SEXUAL ABUSE OF NATIVE AMERICAN WOMEN

Alexis Raye Carter, Department of Native American Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Native American Studies

Sexual assault has continued to be problematic in American society. The Department of Justice statistics indicate that Native American women experience a higher risk of sexual assault than any other American female demographic. This paper will examine the issues of legal jurisdiction on reservations as well as the issues involving the prosecution of alleged perpetrators. Additionally, the paper will focus on the potential health issues resulting from increased sexual assaults on reservations.

END-OF-LIFE CARE AND MORAL DISTRESS

**Jacquelyn Gillaspay, Zsuzsanna Bartha, Joseph Pyles, Baily Korb, and DeErika Williams,
College of Nursing and Health Sciences**

Faculty Sponsor: Dr. Maura Schlairet, College of Nursing and Health Sciences

This paper examined the role of communication in end-of-life/hospice care and relationships with moral distress among registered nurses (RN). Effective communication promotes patient autonomy through RN advocacy. A descriptive study was conducted utilizing a convenience sample of RNs from a Health System in the northeastern United States during an eight-month period. Using a survey design, two established instruments were distributed to (n=227) RNs. Possible barriers were identified in communication and patient care. Moral distress was identified, with a mean frequency of 1.30 (SD + 0.6), among sampled RNs. RNs viewed care that was unnecessary and not in the patient's best interest as the most frequent catalysts for moral distress; while giving false hope, poor communication, and futile care increased moral distress intensity. RNs who did not believe it was their place to initiate the end-of-life/hospice care discussions reported less moral distress. Future research examining identified variables is recommended.

UNDERGRADUATE NURSING RESEARCH AND FUTURE SUCCESS

**Britney Hadsock, Megan Moss, Becky Shell, Shelby Elder, and Eve Macgonigle, College of
Nursing and Health Sciences**

Faculty Sponsor: Dr. Maura Schlairet, College of Nursing and Health Sciences

To advance understanding of evidence-based nursing practice, bachelor of science in nursing degree students were exposed to real-world, faculty-guided, clinically-grounded nursing research through enrollment in an undergraduate nursing elective course. This paper examined students' research skills, attitude towards research, and desire to attend a graduate program leading to an advanced degree following enrollment in this course. A longitudinal correlational design with pretest-posttest measurement was used. Students' growth in research skills was evidenced through ability to develop appropriate PICO-style research questions, identify validated survey instruments promoting data collection on 149 clinically relevant variables, and create/deliver two formal professional presentations to clinicians. Post-testing revealed of the 52 students, the number with a positive self-rated attitude toward attending graduate school rose from $n = 10$ to $n = 34$. Patterns in response to open-ended questions revealed students' positive perception of growth and future success associated with completion of the undergraduate research course.

DIFFERENCES BETWEEN CLASSICAL AND MODEST FOUNDATIONALISM

Robert Eric Spivey, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Philosophy and Religious Studies

My project will address the branch of epistemology known as Foundationalism and will specifically cover the conflict between Classical Foundationalism and Modest Foundationalism. The project will discuss how classical foundationalism and modest foundationalism differ, including the types of beliefs that qualify as basic beliefs, the criteria these qualifiers must meet, and the question of justification by either deductive or inductive methodology. These questions are at the center of the conflict between the two different types of foundationalism, particularly the question of what constitutes a basic belief.

DRETSKE'S PERCEPTION: CAUSAL ANALYSIS VERSUS INFORMATIONAL ANALYSIS AND PHENOMENAL EXTERNALISM

Robert Dylan Hodge, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Philosophy and Religious Studies

This paper considers Fred Dretske's endorsement of the informational analysis of perception as opposed to the causal analysis of perception. The causal analysis position holds that sensations are best analyzed by giving an account of what caused the particular sensation, whereas the informational position holds that sensations are best accounted for by analyzing which aspect of a sensation carries its significant, necessary information. The paper will examine the relationship between Dretske's informational analysis and Dretske's position of phenomenal externalism. Finally, this paper will address the objections to informational analysis and phenomenal externalism as given by Paul Horwich and Jaegwon Kim.

FEMINIST ZEN AND THE BODHISATTVA PATH

Susan Leigh Jones, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Michael Stoltzfus, Department of Philosophy and Religious Studies

Women's full and vibrant participation in social, political, and religious events has often been hampered historically by normative culture which is itself shaped by patriarchal ideology. This poster briefly explores both historical and modern experiences of three distinct groups of Buddhist women, ordained monks, priests' wives, and lay practitioners, in an effort to demonstrate that following the Bodhisattva Path to enlightenment provides women with a fuller religious experience and broader social acceptance within their respective cultures and traditions. Particular attention will be paid to Buddhist concepts of sexual morality as they pertain to the discussion of each group.

JEWISH, GRECO-ROMAN, AND CHRISTIAN INFLUENCE ON THE INFANCY GOSPEL OF THOMAS

Andrew Oaks, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lily Vuong, Department of Philosophy and Religious Studies

This paper examines Jewish, Greco-Roman, and orthodox Christian influence on the Infancy Gospel of Thomas (IGT), a second-century Christian text often categorized as "gnostic." The investigation begins with a summary of the text, and then examines elements in IGT that seem to contradict views of anger and education in the three cultures. This will be followed by an examination of ways in which IGT reflects or may be influenced by elements of the cultures in question. The investigation concludes that, although IGT appears to oppose many elements of Jewish, Greco-Roman, and orthodox Christian culture, there is enough complexity, nuance, and heterogeneity in said cultures to allow for a text like IGT to come into being.

MINDFULNESS MEDITATION IN INTIMATE RELATIONSHIPS

Tanner Tai Blue, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Michael Stoltzfus, Department of Philosophy and Religious Studies

This paper explores the use of mindfulness meditation specifically in couples' therapy as a brief literature review. Mindfulness meditation is the cultivation of awareness using meditation as the means to achieve it. There has been much study of mindfulness meditation, specifically stemming from Buddhism, in therapy in the West. However, very little has been done specifically on couples. The history of mindfulness meditation research in therapy and existing measurements of mindfulness will also be addressed. The measurements discussed include the Kentucky Inventory of Mindfulness Skills, the Mindfulness Attention Awareness Scale, as well as the Noble Eight-Fold Relationship Matrix. This paper also explores Christian meditation for Christian couples. Both the Buddhist and Christian meditation form have proven effective in therapy.

SEXUAL DESIRE: A PHILOSOPHICAL APPROACH

Pamela A Johnson, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lavonna Lovern, Department of Philosophy and Religious Studies

In this paper, I will explore Jean-Paul Sartre's existentialist discussion of sexuality. The paper will examine Sartre's constructs of sexual desire, understanding and interaction as expressed in his work *The Body*. Throughout this paper, the focus will be on an analysis of these concepts in order to establish a definition and the implications of sexual desire as a means of determining individual actions in the mode of desire. Additionally, discussion will be given to the position experienced when one becomes an object of desire. The paper will conclude with a critique of Sartre's discussion using Simone De Beauvoir's *The Woman in Love*.

THE FEMINIST THEORIES OF ART

Kaylan Faith Hand, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Christine James, Department of Philosophy and Religious Studies

This poster addresses the issue of feminism and aesthetic theory applied to works of art during the 18th and 19th century. Linda Nochlin's *Women, Art, and Power* represents 19th century portrayals of women in art as passive figures, and Whitney Chadwick's *Women Artists and the Institutions of Art* represents 18th century depictions of women in the domestic rather than the public sphere. I will compare and contrast Nochlin and Chadwick as their theories apply to Eduoard Manet's *Olympia*, Manet's *A Bar at the Folies Bergere*, and David's *Oath of the Horatii*. I will argue in favor of a specific theory that clarifies portrayal of women's emotional states in works of art. Recent commentaries such as Dan Karlholm's 2012 interview with Nochlin, "Misery, Beauty, and Other Issues," have brought out more complicated issues in interpreting women's emotions through art.

THE "PROSTITUTE" UNCOVERED

Sydney Beckmann, Department of Philosophy and Religious Studies

Faculty Sponsor: Dr. Lily Vuong, Department of Philosophy and Religious Studies

Ironically, as one of the most ubiquitous figures in Christian history, Mary Magdalene also stands as one of the most misunderstood. What little information that is provided about her has been misconceived, distorted, or falsely invented by the early Church Fathers. Not only is there evidence that Mary Magdalene was vastly different from the image given by the early church, but also that she played a significant role in the development of nascent Christianity. This project attempts to explore the evidence, especially gnostic and non-canonical sources, which supports the view of Mary Magdalene as one of Jesus' most important companions.

A NEW METHOD FOR DEMONSTRATING THAT THE CHARGE OF AN ELECTRON IS QUANTIZED

Steven K. Terry, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Frank Flaherty, Department of Physics, Astronomy, Geosciences and Engineering Studies

The Milikan oil drop experiment was designed to demonstrate that the charge of an electron is a fixed quantized value. This was done by measuring the rise and fall velocities of charged oil drops under the influence of an electric field. A new method for showing charge quantization is investigated which relies on adjusting the electric field to hold the oil drop stationary. The field is readjusted whenever the drop gains or loses an electron to keep the drop from moving. A mathematical technique called continued fractions is used to analyze the ratio of the electric fields in terms of simple rational fractions and thus demonstrate that the electrical charge of an electron is a fixed quantized value.

CORING AND SAMPLING OF SOILS FROM OSSABAW ISLAND

Megan D. Hunnicutt, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Donald M. Thieme, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Ossabaw Island is a relatively pristine barrier island currently located just south of the mouth of the Ogeechee River. This study sought to test the hypothesis of a Pleistocene age for the landform, and in particular the presence of a well- developed paleosol. Two soil cores over three meters deep were described and sampled using a soil auger from a ridge thought to represent a remnant of a Pleistocene barrier island. Preliminary analysis of the core samples for percent organic matter by loss-on-ignition (LOI) shows the presence of a paleosol in both cores but at slightly different depths. A secondary peak occurs in Core 1 at 120-150 cm below surface, while the depth of the paleosol in Core 2 is at 260-320 cm below surface.

DESIGN OF GAS-FLOW INVERTER FOR TRANSFORMATION OF STEADY-FLOW INTO PULSED-FLOW

**Karl Pearce, Department of Physics, Astronomy,
Geosciences, and Engineering Studies**

**Faculty Sponsor; Dr. Hasson M. Tavossi, Department of Physics, Astronomy, Geosciences,
and Engineering Studies**

Direct gas flow is converted into alternating flow, under experimental conditions in a reactor column with inclusion of a layer of uniform porous medium. Experimental investigation and findings are presented that show the transformation of a uniform flow into a large amplitude pulsed-flow. The experiment shows that the amplitude of flow-oscillation depends on system size, and there exist a threshold for flow-rate below which no oscillations will occur. This change in flow regime; from laminar to turbulent, with superimposed inharmonic oscillations, is similar to the chaotic phenomenon of bifurcation. A preliminary mathematical model is derived to express resonance frequency of the flow and its amplitude in terms other variables such as; pressure-drop, flow-rate, pore-ratio, dynamic viscosity, and dimensionless fluid dynamic characteristic numbers.

EFFECT OF METAL SURFACES ON PLASMA CHEMISTRY IN A COMMERCIAL GRADE PLASMA ETCHING SYSTEM

Arthur Bui, Department of Physics, Astronomy, Geosciences, and Engineering Studies

**Faculty Sponsor: Dereth J. Drake, Department of Physics, Astronomy, Geosciences,
and Engineering Studies**

The use of plasma for etching and cleaning of many types of metal surfaces is becoming more prominent in industry. This is primarily due to the fact that plasma etching can reduce the amount of time necessary to clean/etch the surface and does not require large amounts of environmentally hazardous chemicals. However, the sheer presence of any metal surface can profoundly change the plasma chemistry. Using emission spectroscopy, data was taken in a commercial grade plasma etching system before, during, and after a piece of anodized niobium was etched by an Ar/Cl₂ plasma. The results clearly indicate a strong effect on the plasma chemistry, which has until now been sparsely studied in these types of devices. These results will be presented at the conference.

ENGINEERING MECHANICS: HISTORY AND SIGNIFICANCE

**Lauren Hale, Carlos Ponce, Minh Tran, and Byung Kim,
Department of Physics, Astronomy, Geosciences, and Engineering Studies**

**Faculty Sponsor: Dr. Barry Hojjatie, Department of Physics,
Astronomy, Geosciences, and Engineering Studies**

Engineering mechanics is a broad field which covers all phases of materials. Applications of mechanics allow engineers to develop new material and build structures, tools, and other products that advance the betterment of society. Many areas of engineering such as mechanical, civil, biomedical, and aerospace engineering rely on the fundamental understanding of theories and applications of classical mechanics. This paper will provide a historical perspective of the field of engineering mechanics, introduces its main contributors, and discusses about its significance in development of technical problem solving skills in future engineers.

FRACTURE ANALYSIS IN THE OLIGOCENE AGE SUWANEE LIMESTONE OF NORTH FLORIDA

**William Simmons, Department of Physics, Astronomy, Geosciences,
and Engineering Studies**

**Faculty Sponsor: Dr. Mark Groszos, Department of Physics, Astronomy, Geosciences,
and Engineering Studies**

The Suwannee River in north Florida is one of the few areas in this region that shows abundant bedrock outcrops. These outcrops provide valuable information concerning fracture patterns in the area. This study focused on fractures along a ten mile segment of the Suwannee River. The river was accessed by canoe traverse along a twenty mile segment of the river in December of 2013. A total of fifty fractures were measured using standard geological techniques. The locations of these fractures were recorded with hand-held GPS. The resulting strike and dip measurements were analyzed using stereographic projection. This type of analysis allows structural trends to be identified and measured with great accuracy. Preliminary results show a strong N-NE trend to the fractures. The results from this study will be combined with the results of other similar studies in an effort to characterize the regional fracture trends in the area.

GPR INVESTIGATIONS ON JEKYLL ISLAND

Cliff Yearta, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Donald M. Thieme, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Coastal sedimentary facies were investigated in three field areas on Jekyll Island using a 100 MHz ground-penetrating radar (GPR) system. In Clam Creek marsh, four profiles were collected running from the edge of sand ridges across tidal marsh. At the Causeway location near the entrance gate, two profiles were collected in close proximity to vibracores performed by the University of West Georgia. The GPR penetrated beneath surface sands to identify marsh clay and other facies several meters beneath the surface. On the North Beach, a grid of seven GPR profiles was run across an area where peat and paleosol humate have been exposed by ongoing wave erosion. The GPR profiles define individual tree root systems as well as other buried layers that appear to represent tidal marsh.

GROUND PENETRATING RADAR INVESTIGATION OF A SAND DUNE

Rebecca M. Lenz, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Can Denizman, Department of Physics, Astronomy, Geosciences, and Engineering Studies

The study area, located in Little Ocmulgee State Park within the Coastal Plain of Georgia includes typical Coastal Plain dunes that are lower and more extensive than the ones in North Georgia. The dune borders the Little Ocmulgee River, and is Pleistocene in age. The goal of the investigation is to show the subsurface stratigraphy of the aeolian dune. In order to achieve this, a Ground Penetrating Radar (GPR) with a 100 MHz antenna was employed. Six GPR profiles were run in east-west and north-south directions throughout the study area. The raw profile data was filtered and analyzed using computer software.

PETROGRAPHIC ANALYSIS OF BEDROCK LIMESTONE ALONG THE SUWANNEE RIVER, SUWANNEE COUNTY, FLORIDA

Justin D. Harrison, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Mark S. Groszos, Department of Physics, Astronomy, Geosciences, and Engineering Studies

The Suwannee River flows across north Florida through an entrenched karstic meander system cut into the Oligocene aged Suwannee Limestone. Abundant outcrops of limestone occur along the banks of the river. This study will focus on petrographic analysis of rock types to identify lithologic features that could be associated with fractures (joints) in the bedrock. The study area is a 20 mile canoe traverse along the Suwannee River. The Suwannee Limestone in this area is composed predominantly of fossil-rich rocks. Preliminary analysis of these rocks shows, in addition to fossils, fine-grained calcite (micrite) with some recrystallization to sparry textures towards the west of the river traverse. Samples were taken at discrete intervals along the traverse. The samples were then cut for thin section preparation prior to petrographic analysis.

RESEARCHING AND DEVELOPING A CLIMATE CHANGE ACTION PLAN FOR VALDOSTA

Rodney Brown, Shelby Dunbar, Rynada Folsom, Christopher Glenn, Nathaniel Jones, Gabriella McDonald, Richard Miller, Karen Mitchell, Charles Nimmo, Andrew Overcash, Rebecca Tucker, Thomas Turner, Malcolm Warren, and Tanisha Williams, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Jia Lu, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Climate change is one of the most immediate threats to our human society and the surrounding environment. However, there is no current climate change action plan for the city of Valdosta. The objective of this project is to involve our undergraduate classmates in an active discipline-based learning through inquiry and analysis of real world climate change action plans in other municipalities, and suggest a similar climate change action plan for our city. We applied environmental policy analysis, interview, and service-learning approach to synthesize and analyze current climate change action plans in other cities. During the process, we learned how to conduct research, including how to collect data, assemble data, analyze data from other cities regarding their climate change action plans, evaluate their success and lessons, and propose a similar approach for the city. The findings indicate an exciting and challenging journey in developing a general policy guideline regarding climate change action plans for the city.

SEA SURFACE TEMPERATURE TRENDS IN THE NORTHERN GULF OF MEXICO BETWEEN 1921 AND 2012

John Vincent Clarke III, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Jason Allard, Department of Physics, Astronomy, Geosciences, and Engineering Studies

Sea surface temperatures (SSTs) play a vital role in interactions between the ocean and the atmosphere, and can directly affect aspects of the climate such as the intensity of hurricanes. Research has shown that there has been an overall increase in global SSTs over the past century of between 0.3° and 0.6° C, while a long-term trend in SSTs for the Gulf of Mexico is less clear over a similar period. This current study specifically examines SSTs in the northern Gulf of Mexico to understand the magnitude and timing of changes in SSTs for this region from 1921 to 2012. Monthly SSTs were collected from the International Comprehensive Ocean-Atmosphere dataset (ICOADS 2.5) for 2° by 2° grid cells in the northern Gulf of Mexico, and averaged by season and annually for each year between 1921 and 2012. The changes in SSTs were then calculated for each grid cell over the entire study period, and for shorter periods, to determine the magnitude of changes in temperature. SSTs were also averaged and compared by decades within the study period to determine when the largest changes in SST occurred. Results show that most of the region warmed during spring, summer, and fall, while winter shows both areas of warming and cooling. The magnitude of the changes in SSTs also varied according to season and by location within the study region. In addition, the changes in SSTs were not uniform over the course of the study period. Rather, there were distinct periods of warming and cooling embedded within the overall trends in temperature.

STUDY OF SAND DUNES ON MARS

Robert Butler, Physics, Astronomy, Geosciences, and Engineering Studies

Faculty Sponsor: Dr. Martha Leake, Physics, Astronomy, Geosciences, and Engineering Studies

Dunes on Mars were studied carefully and researched using current photos from the orbiter space craft and the Martian rovers. Most dune types are barchans, linear, star, dome, and transverse, which are more frequently located in the southern hemisphere. Quadrangle MC-27 (Noachis) is a rich area filled with dunes. The information on orientation of the sand dunes and their streaks was collected by both myself and others. Their formation was compared to the formation of select dunes and dune fields on earth. A wind tunnel was constructed to help understand the process of dune and streak formation, wind direction, speed, and sand supply. The sand used in the wind tunnel experiment was sieved to determine approximate grain size, and then compared to Martian sand data from the rovers Curiosity, Opportunity, and Mars Reconnaissance Orbiter. Finally wind speeds were adjusted to understand what energies were needed to saltate or suspend particles.

WATER CHEMISTRY ANALYSIS OF SURFACE – GROUNDWATER INTERACTIONS OF THE WITHLACOOCHEE SINK AREA

Eric Emmett, Department of Physics, Astronomy, Geosciences, and Engineering Studies

**Faculty Sponsor: Dr. Can Denizman, Department of Physics, Astronomy,
Geosciences, and Engineering Studies**

In the area of the Withlacoochee River just north of Valdosta, Georgia there is a series of sinkholes where it is believed that water from the surface is interacting with and exchanging properties with the local groundwater. By examining changes in pH, electrical conductivity, temperature, and oxidation reduction potential we hope to show how the surface water is being changed during its underground travel by measuring these values both before it submerges and when it emerges again downstream. Sampling was done two to three times a week for approximately five months in total. Rainfall amounts were also taken into consideration for sudden changes in recorded levels.

ALABAMA: A SOUTHERN TRADITION

Kenneth Donte Holiday, Department of Political Science

Faculty Sponsor: Dr. James T. LaPlant, Department of Political Science

This study examines issues that affect the past, current, and future implications of Alabama's political legacy. Alabama was once a strong Democratic threshold for years and is now a strong base for the Republican Party in state and national elections. This paper looks at the political legacy of Alabama's most well-known politician Governor George Wallace all the way to the current Republican state government trifecta and domination of the Republican Party in national elections. This paper examines the presidential vote by county as the dependent variable and the independent variables are the African American population, education, population over 65, per capita income, religious adherence, homeownership rate, population density and voter turnout. This research paper also includes a state level and federal level Ranney index which is current as of 2013. The federal level Ranney index for 2013 finds Alabama to be one-party Republican.

LOUISIANA: NOT JUST ANOTHER SOUTHERN STATE

Margaret Maynard, Department of Political Science

Faculty Sponsor: Dr. James T. LaPlant, Department of Political Science

This study examines many of the probable influences on the outcomes of the presidential election between Barack Obama and Mitt Romney in Louisiana as well as historic influences on Louisiana's political outcomes in today's society. The election was influenced by many different variables, but the ones examined in this paper were percent of the population with a bachelor's degree, percent of the population 65 years and older, percent of the population that is African American, and religious adherence in the state (per 1000 population). Overall, the analysis showed that percent of the population that is African American was highly statistically significant with a probability of less than .01. The percent of the population that is 65 years and older is statistically significant with a probability of less than .05. The African American population is positively associated with the Obama vote, while the percent of the population 65 years and older is negatively associated with the Obama vote.

EFFECTS OF PARTICIPANT KNOWLEDGE OF RESEARCHER CHARACTERISTICS

Crystal Johnston, Department of Psychology

Faculty Sponsor: Dr. Jeremy Tost, Department of Psychology

This study examined the effects of knowledge of the researcher's major, psychology, and the participants' major on attitudes towards therapy and behavioral tendencies toward therapy. The participants of this study were asked to complete a survey after a researcher revealed their major or disclosed no information. The researcher expected to find more positive attitudes and behavior towards therapy when the participants were told that the researcher was a psychology major and when the participants themselves were psychology majors compared to those who were not told or were not psychology majors. It was found that psychology majors had significantly more positive attitudes toward therapy than non-psychology majors. The researcher also found that participants who had family or friends with experience in therapy were significantly more positive than those who did not have the same.

EFFECTS OF THE MEDIA'S PORTRAYAL OF SIZE ON BODY SATISFACTION

Anna-Leigh Powell, Department of Psychology

Faculty Sponsor: Dr. Jeremy Tost, Department of Psychology

This study examines the effects of a model's size on an individual's perceived body image and personal satisfaction. The participants consisted of twenty females and twenty males. Ten of the females viewed normal magazine covers of the popular women's magazines *Cosmo* and *Vogue*. The other ten females viewed the same images that were edited to appear heavier. The same process was followed for the males except with *Men's Health Magazine*. Following the initial viewing a survey was administered to gauge participants' perceived body image and satisfaction. The participants' "perceived body image" was measured by a body silhouette scale. Participants' "personal satisfaction of body shape" was measured by a satisfaction rating scale. As predicted, there was a significant interaction between gender and image on perceived body image.

PUBLIC PERCEPTION OF THE DAIRY INDUSTRY BASED ON MEDIA PUBLICATIONS AND AREA A PERSON WAS RAISED.

Thomas Jacob Hines, Department of Psychology

Faculty Sponsor: Dr. Jeremy Tost, Department of Psychology

The purpose of this study was to examine the effects of media publications and area a person was raised on the perception of the dairy industry and willingness to buy dairy products. Participants were assigned to one of two conditions: condition one received a USDA-publication reflecting positively on the dairy industry, condition two received a PETA-publication reflecting negatively on the dairy industry. It was predicted that the PETA-publication would have a strong negative effect on participants raised in urban areas, while those raised in rural areas would be less affected by the PETA-publication. The results showed that there was a significant main effect for document type, and significant main effects for the area participants were raised. Participants who received the USDA-publication showed significantly higher favor for the dairy industry than those who received the PETA-publication. Likewise participants raised in rural areas scored significantly higher than those raised in rural areas.

SELF-AWARENESS AND ANXIETY

James Ransom Whelan, Department of Psychology

Faculty Sponsor: Dr. Jeremy Tost, Department of Psychology

This study examined the effect of self-monitoring and the presence of another on self-reported anxiety and logic puzzle performance. Participants were given logic puzzles with a five minute time limit, followed by a self-report anxiety scale, self-monitoring questionnaire, and a demographic survey. Eighty participants were randomly assigned to either the scrutinized or ignored condition. Participants in the scrutinized condition were made aware of the instructor actively observing the individual, and participants in the ignored condition were not. The self-monitoring questionnaire divided participants into either the low, intermediate, or high condition for self-monitoring. A significant main effect for self-monitoring is expected, with high self-monitors reporting higher levels of anxiety than the low self-monitors. Similarly, a main effect for scrutiny is predicted, such that the scrutinized group will report higher levels of anxiety than the ignored group.

THE EFFECTS OF A POSITIVE COGNITIVE PROCESSING BEHAVIOR MODIFICATION PLAN ON SELF-IMAGE

Kaylan F. Hand, Department of Psychology

Faculty Sponsor: Dr. Jeremy Tost, Department of Psychology

This paper is based on a behavior modification plan that set out to increase positive thoughts while decreasing negative thoughts about one's self as too increase their self-image. The goal of the behavior modification was to eventually help treat depression. The format was an ABA treatment plan. In the baseline the participant measured how many positive and negative thoughts they had, then in the treatment phase, the participant strategically placed positive note cards throughout regular daily activities. After the treatment was finished the participant measured again how many positive and negative thoughts they had in the next two weeks. The results showed that there was no significant decrease in negative thoughts but there was a significant increase in positive thoughts.

THE EFFECTS OF A POSITIVE SELF TALK BEHAVIOR MODIFICATION PLAN ON ANXIETY

Lisa Wiltsee, Department of Psychology

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This behavior modification plan set out to investigate the changes in anxiety in the participant via the target behavior, positive self talk. The researcher is the participant ($N = 1$). The target behavior is positive self statements beginning every trip to the restroom and this behavior is rewarded by a paper slip. This paper slip is the means by which the participant records the rate of success or failure. The changes in anxiety level are tracked by qualitative data and self monitoring by the researcher.

THE EFFECT OF CONTEMPLATION ON SELF-CONTROL

Samantha Kiley, Department of Psychology

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The purpose of this study was to examine the impact of information from a scientific or mindful standpoint on self-control through breath-hold, and the impact on one's perception of self-control fluidity. Both perspectives gave an APA definition of willpower. The scientific condition described The Buteyko Institute breathing Method and health benefits. Mindfulness, "awareness" reading described a meditation method. The study employed haphazard sampling. Participants ($N = 40$) were asked to hold breath for as long as comfortably possible and to rate self-control fluidity. The participant was given either reading, and second measures of breath-hold and fluidity were collected. A main effect of time for breath-hold showed pre to be significantly lower than post. A main effect of fluidity showed pre to be significantly lower than post.

THE EFFECTS OF GENDER AND SOCIAL NETWORKING ON DESIRE FOR FACE-TO-FACE INTERACTIONS AND MOOD

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This study examined the effects of gender and social networking on desire for face-to-face interactions and mood. The desire for face-to-face interaction was measured as a single self-report item. Mood was measured as an average of three self-report items. The participants, 36 females and 20 males, read a scenario where access to social networking was manipulated. The experimental group read a scenario in which the participant's attempts to access social networking were thwarted. In the control group's scenario, participants were able to access social networking. Next, participants were assessed on their desire for face-to-face interactions and mood. Contrary to the prediction, gender did not have a significant effect on desire for face-to-face interactions or mood. As predicted, the social networking manipulation did have a significant effect on both desire for face-to-face interactions and mood. Results from this study shed light on the impact social networks have on real world relationships.

THE EFFECTS OF NOISE ON CONCENTRATION AND MOOD

Kaylan F. Hand, Department of Psychology

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This study examined the effects of noise on participant's focus and mood. In this research the objective was to see how much of an effect that negative noises have on focus and mood. Participants had taken a questionnaire addressing their study habits and their mood before being exposed to one of the conditions. The participants then read an article on transcendental meditation. After reading the article and being exposed to the condition, participants filled out the remaining parts of the questionnaire which contained the same questions on mood and focus of the pre-test and questions about the article the participants had read. There was significance found for the main effect of time of test both on mood and focus. There was no significance found for condition on focus and mood. There was significance found for the interaction of time on focus and mood.

A COMPARISON OF AMERICAN AND TAIWANESE POLICE

Matthew Towe, Department of Sociology, Anthropology, and Criminal Justice

Faculty Sponsor: Dr. Wilson Huang, Department of Sociology, Anthropology, and Criminal Justice

This paper examines the police systems of the United States and Taiwan. Focuses of the study will be on examining similarities and differences in police roles, departmental policy, and community relations. Law enforcement and order maintenance are major police roles in both systems. In operations, the United States practices a more discretionary approach to policing because of independent departmental policy versus Taiwan's one centralized departmental policy. This paper also examines the different dimensions of policing that have shaped department policies in both societies. Results of the study also shown that although the Taiwanese population is very homogeneous, the United States has a better relationship in regards to community relations.