



PRESBYTERIAN COLLEGE

COLLEGE OF ARTS & SCIENCE | SCHOOL of PHARMACY

HONORS DAY SYMPOSIUM

2014



April 24, 2014

Dear Faculty, Students and Guests,

It is a pleasure to welcome each of you to the Presbyterian College Honors Day Symposium. As a member of the Council on Undergraduate Research, the College values research and its integral part of the educational process.

The opportunity for students to explore their intellectual interests and to develop the concomitant solutions is critical if society is to address today's challenges and to prepare for the future. Research—particularly at liberal arts colleges—allows innovative scholarship at a very high level.

I am delighted to have an opportunity to recognize the students listed in this abstract book. These individuals have committed themselves to an endeavor that is special. Equally important is the support provided our students by their faculty mentors. Without the commitment and dedication of the faculty, there would be no research program. I congratulate the students and applaud the faculty who support them.

You and I have the privilege of enjoying the results of our students' efforts, thereby providing them with practical experience in sharing their work and creative activity. We have an opportunity to evaluate each participant's project and to be inspired by what a PC academic experience can produce. Following these presentations, please join us at the Honors Convocation in Belk Auditorium.

Welcome to Honors Day.

Sincerely,

A handwritten signature in black ink, appearing to read 'Claude C. Lilly'.

Claude C. Lilly
President



April 24, 2014

Members of the Presbyterian College Community,

Honors Day is an important day in the academic life of Presbyterian College. We set this day apart from others in the calendar to emphasize particular academic and creative accomplishments of our students. The projects you see in this booklet reflect exciting ventures that students pursue with faculty mentors in the College of Arts and Sciences and the School of Pharmacy. As students engage in research and creative activity, they enhance their academic abilities and develop the initiative required to pursue with excellence their areas of interest.

Students have the chance to engage in different research opportunities throughout the year. A capstone experience is required for all major programs on campus. The PC Summer Fellows program highlights the joint work of students and faculty outside the traditional curriculum. Honors research is, furthermore, an occasion for exceptional students in different disciplines to explore deeper issues within their majors. This Symposium, then, provides the forum for sharing these experiences and presenting the work of students to their classmates, their professors, and others in the PC family.

Students participating in the Symposium present papers, engage in performances, participate in shows, and compose publications. Each of these opportunities provides a way to celebrate different achievements, yet students also receive important, critical review of their work by experts in their respective fields. Such interactions are essential to the academic or artistic development of any scholar or practitioner.

Congratulations to all of our students who are participating in the 2014 Honors Day Symposium, and congratulations as well to the faculty members who have mentored or supervised those students who are presenting their work today. Let me also offer my appreciation to those who have organized the Symposium and compiled this booklet for your review: without their diligence and commitment to student success, this day would not be possible.

Enjoy the 2014 Honors Day Symposium!

Sincerely,

Donald R. Raber II, Ph.D.
Provost

HONORS DAY SYMPOSIUM

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Analysis of Ecological Factors that Influence the Gut Bacterial Communities of Fish

Mariana G. Anderson

Jeffery M. Grim, Ph.D.

Department of Biology

Much work has focused on the relationship between the gut microbial flora and diet/human health, however, relatively little attention has been given to how the different feeding ecologies of other animals may be linked to species-specific changes in gut-associated bacteria. The goal of this study is to examine whether differences in fish gut microbiota support the occupation of unique trophic niches within a habitat. This study will also consider whether microbiota density and composition change over the length of the gut. Sullam et al. addresses this on a wide range of species and found differences in gut microbiota exists between species. In order to determine if these differences are found on a smaller scale, intestinal tracts were sampled from spotted sea trout (*Cynoscion nebulosus*) and striped mullet (*Mugil cephalus*) from Charleston Harbor, Charleston, South Carolina. These species were chosen because they occur sympatrically in near-shore coastal waters. Data from this study indicate there are no significant differences in microbiota composition between species ($p > 0.05$). However, there are significant differences in composition along the length of the gut within a species ($p < 0.05$). Data from this study will add to knowledge of GI microbes of fishes and the functional roles they play in facilitating fish ecology.

The Effect of Visual and Auditory Distractors on Task Performance

Stephanie E. Allen and **Victoria N. Lopez**

Sarah C. Burns, Ph.D.

Department of Psychology

Undergraduate students at Presbyterian College will be asked to participate in an experiment hoping to find an impact between visual and auditory distractors and task performance. Each of the four conditions will have a letter-finding task in which the participant will find all of the “E’s” or “O’s” in a text while being presented with auditory, visual, both auditory and visual, or no distractors. Each student will consent to participating in the experiment, complete the task for each condition, be debriefed, and will receive extra credit if possible. The hypothesis is that as more distractors are presented to the participants, the brain will perceive that the perceptual load is increasing and therefore attention must increase, canceling out the distractions.

Race, Poverty and U.S. Healthcare: Not So Healthy For All

Jordan P. Archer

Erin S. McAdams, Ph.D.

Department of Political Science

The United States spends more on healthcare than any other nation in the modern world, but after close examination, certain groups of individuals do not adequately benefit from this extensive spending. By examining data from the Agency for Healthcare Research & Quality (AHRQ) and the Census Bureau from 2012, this project analyzes the effects that poverty and race have on the quality (and inequality) of healthcare that patients receive in all fifty states. Specifically, healthcare quality in the Southeastern states is compared to healthcare in all other regions of the United States for those living in poverty or as non-white minorities.

The Effect of Rule Changes on Competitive Balance in NHRA Professional Classes as Measured by the Gini Coefficient and the Resulting Lorenz Curve

Gonzalo Asis

C. Clinton Harshaw, Ph.D.

Department of Mathematics

Evidence of the direct relationship between competitive balance and fan attendance makes the former a major concern in professional sports. The methods used to measure competitive balance in sports vary. In this paper we analyze competitive balance in professional classes of drag racing using a measure of economic inequality: the Gini coefficient. We also investigate the impact of rule changes on competitive balance in each of the four professional classes over the years from 2009 to 2013, and we do this by examining the Lorenz curves to better compare classes and years. The results of our analysis reveal changes in competitive balance occurring almost exclusively in the top half of drivers; fans' and drivers' perception of balance do not always correspond with the evidence from the Gini coefficient; and rule changes do not guarantee a more competitively balanced class.

No Surrender: Evangelical Intractability in the Irish Troubles

Joseph E. Barakat

Erin S. McAdams, Ph.D.

Department of Political Science

When considering the cause of the protracted violence and tension of the Irish Troubles (1968-1998), scholars from the Marxist, nationalist, and unionist persuasions have proffered arguments that attempt to delineate the economic and political motivations behind communal intransigence and polarization. However, by analyzing data drawn from the Northern Ireland Loyalty Survey (1968) and the British Social Attitudes Survey (1989-1998), this paper seeks to demonstrate that evangelical fundamentalism provided the driving impetus behind unionist intractability and political identity. In doing so, this paper aims to elucidate the broader interplay of religion and politics through the case study of the Irish Troubles.

The Effects of Gender Roles on Gun Ownership

James B. Barnes

Robert H. Freymeyer, Ph.D.

Department of Sociology

Guns have become increasingly prevalent in American society for hunting, recreation, and protection. This study uses data from the 2012 General Social Survey, a nationally representative data set, to examine the effects that gender roles have on the ownership of a gun. Previous research has found that gender roles are associated with firearm ownership. I expect to find that those with more traditional gender role attitudes are more likely to own a gun than those with less traditional attitudes. This relationship should be stronger for men than for women since men are more likely to own a gun.

Dynamics of Political Attitudes

Jaime C. Beamish

Jay L. Michaels, Ph.D.

Department of Psychology

I conducted a study to examine how people's attitudes to a variety of issues vary based on their political affiliation. I had participants complete surveys and a computer task. The surveys included Likert-scale attitude questions and items from major polls (e.g. Pew). In the computer task, participants moved a cursor to indicate their attitudes were more liberal (movement to the left) or conservative (movement to the right). The computer data allowed me to understand whether people's attitudes are tied to liberal or conservative representations versus some mixture of the two. My results show expected differences between self-identified conservatives and liberals, but reveal that independents have unique attitudes.

Alterations in the FGD1 Gene of Breast Tumors

Sarah E. Beasley

Christopher L. Farrell, Ph.D.

Department of Pharmaceutical Sciences

In the United States, an estimated 40,000 women will die from breast cancer. This deadly cancer develops through somatic alterations to the DNA in the tumor cells. Alterations to oncogenes increase the activity causing the promotion of tumor development. The FGD1 (FYVE, RhoGEF and PH domain-containing protein 1) gene has been identified as a potential oncogene. Through the use of next-generation DNA sequencing, we are examining 46 cases of breast cancer to identify novel mutations in the FGD1 gene. We have identified the expression of FGD1 in breast tumors and have discovered novel polymorphisms within the coding region of the FGD1 gene. In addition, we identified 4 tumors with a gain in copy number of the FGD1 gene suggesting that there is an increase in FGD1 expression. Alterations and polymorphisms in the FGD1 gene may lead to the promotion of breast cancer development.

A Revisionist Theory of Party Sorting: Your Issues, Your Party of Choice

Adam J. Bradshaw

Erin S. McAdams, Ph.D.

Department of Political Science

In the present political system, the similarities between being Republican/Democrat and Conservative/Liberal are almost non-existent. Scholars agree that the political parties and political elites (such as Congress) are polarized, but a new argument spearheaded by Dr. Morris Fiorina (2005) suggests that the American public is not polarized, but is merely sorting itself between the two dominant political parties that are controlled by these polarized elites. Assuming a revisionist-based voting theory is true, this paper analyzes data from the American National Election Studies from 1976 to 2008 to determine whether increased issue voting is correlated with an increase in party sorting.

Probiotics in the Metabolism of Gluten

Lanie L. Brisben

Evelyn J. Swain, Ph.D.

Department of Chemistry

The objectives of this research project will be to prove probiotics are capable of metabolizing gliadin, an important protein component of gluten. The experiment will involve the annotation and functional prediction analysis of the genome of *Lactobacillus reuteri* JCM 1112 (LR) and *Bacteroides xylanisolvens* XB1A (BX). This will be carried out through annotation of LR. The annotation will be done through Rapid Annotation using Subsystem Technology (RAST). A literature search will be done on proline and glutamine metabolism and the 33-mer peptide found in gliadin proteins from gluten. This will allow us to do a targeted annotation and analysis. Laboratory experiments will be done including: testing for antibiotic resistance and random mutagenesis followed by cell based assays. A test will be done for prototrophic growth on proline/ glutamine minus plates. A gastrointestinal digestion simulation of gluten will be performed without probiotics, over the counter probiotics, and the specific strains. If LR/BX can metabolize the proline and glutamine gliadins found in gluten, a viable probiotic treatment for celiac disease could be represented.

Suffering and Misery in *Wuthering Heights*

Cameron R. Brock

Jerry J. Alexander, Ph.D.

Department of English

Amongst the many different themes in Emily Brontë's *Wuthering Heights* is the theme of suffering; it plays a pivotal role in the development and demise of certain characters. Whether it is physical or emotional suffering, nearly all of the characters in this novel experience suffering at one point or another. However, for the novel's two main characters, Catherine Earnshaw Linton and Heathcliff, suffering seems to be essential to their individual characters as well as the relationship they share with each other. In *Wuthering Heights*, suffering propels Catherine and Heathcliff's relationship forward while continuing to plague their relationship, even after Catherine's death. Brontë clearly emphasizes love as a source of pain. The constant struggles that Catherine and Heathcliff experience as a result of love stress one thing: in *Wuthering Heights*, misery can be found even in a safe haven, love.

The Economics of Dying

Jessica N. Carriker

J. Justin Brent, Ph.D.

Department of English

Today there is increasing controversy in defining the exact moment of death which is exacerbated by the fact that death is often a social construct whose definition changes depending on a society's values and beliefs. In our own society, conflicting perspectives, such as biological, philosophical, and religious, all compete with one another to provide the most viable definition. However, as our society is becoming increasingly older, growing in debt, and having less accessible healthcare, an economic definition is becoming even more likely. In this economic definition, death would be determined not by the biological functions of the body or by the presence of personhood but by the cost of extending life and the person's usefulness to society. As a society, we should resist this economic pull towards expediency and not let money become our highest value.

Tin Whisker Growth vs. Stress and IMC Evolution

Hannah C. Carson

Chad L. Rodekohr, Ph.D.

Department of Physics

This paper examines stress evolution in Sn sputtered samples in relation to whisker nucleation. Though no noticeable IMC was formed, etching and EDX examination were used to find it. Whisker growth was measured using SEM techniques. Stress evolution was measured with traditional bent beam analysis and machine vision techniques. Whiskers were shown to grow on samples of both tensile, compressive and near zero stress. In addition, partial etching of samples seems to stimulate and accelerate whisker growth.

Morphologies of Sn Whiskers during Accelerated Growth Experiments

Hannah C. Carson and **Jennifer S. Lockman**

Chad L. Rodekoeh, Ph.D.

Department of Physics

In this study, the effect of etchant strength on Sn whisker formation was examined. When Sn-sputtered samples were etched with IMC enhancing etchants, the spontaneous growth of Sn whiskers was highly accelerated. Aqueous etchant solutions were used in an attempt to find different surface morphologies during the accelerated growth: 5% HCl and 10% HCl. Etching with hydrochloric acid occasionally produced octahedral crystal and other surface growth instead of Sn whiskers. This study examined the variables associated with these unexpected growth patterns using EDX analysis and scanning electron microscopy.

Effect of Defeat Duration on Avoidance and Anxiety-like Behavior in the Syrian Hamster

Margaret A. Carson and **Sarah E. Gardner**

J. Alicia Askew, Ph.D.

Department of Psychology

Male hamsters that experience social defeat exhibit post-defeat behaviors that include learned avoidance. We have developed a modified passive avoidance apparatus, the conflict alleyway, which allows for the study of post-defeat behavior. The apparatus yields an automated measurement of a hamster's position relative to a caged opponent. We have named this variable the mean position. The purpose of our study was to investigate the relationship between mean position and defeat experience duration. Hamsters were matched by pre-defeat mean position and randomly assigned to either 3 minutes or 15 minutes of inescapable social defeat. Defeat experience and duration had a significant effect on our avoidance measure; more avoidance was observed in subjects experiencing the 15-minute defeat. Numerous studies have used the elevated plus maze (EPM) to study anxiety-like behavior in rodents. Repeated defeat has produced increases in this behavior, but in our study defeat duration had no effect on behavior in the EPM.

Post-Conflict Behavior in the Male Syrian Hamster

Margaret A. Carson and Katelyn S. Leitner

J. Alicia Askew, Ph.D.

Department of Psychology

Socially defeated male hamsters exhibit a variety of post-defeat behaviors including learned avoidance, the avoidance of a dominant opponent. Our apparatus, the conflict alleyway, yields an automated measurement of a hamster's position relative to a caged opponent, mean position, allowing us to objectively quantify avoidance behavior. In a recent pilot study, short and long defeat durations produced avoidance behavior but many of these hamsters had served as subjects in a previous social defeat study. The main purpose of our study was to investigate the sensitivity of our avoidance measure, mean position, to the duration of the defeat experience using socially naive hamsters. Thirty male Syrian hamsters were used as subjects and 10 dominant hamsters served as the dominant opponents. Subjects experienced either a 3-minute or 10-minute defeat or they served as no-defeat controls. Preliminary analysis suggests that the 10-minute but not 3-minute defeat duration produces avoidance behavior.

The Effectiveness of American Drug Policy since the 1980's War on Drugs

Nathaniel A. Crocker

Erin S. McAdams, Ph.D.

Department of Political Science

After the inception of the War on Drugs by President Nixon in 1971, American drug policy experienced a drastic ideological transition under the Reagan administration, beginning specifically in 1984 with the passage of the Comprehensive Crime Control Act. This legislation marks the ideological shift from American preventionist policy to criminalization policy to combat the American drug problem. This study theorizes that the drug policies implemented since the 1980s have had no effect on or created a rise in drug abuse overtime due to a rise in drug-related deaths, incarcerations, and drug abuse. Through the analysis of the correlation between Congressional drug policies and drug abuse overtime, this study intends to offer insight on whether the criminalization policies implemented since the 1980s have been effective.

The Effect of Gold Nanoparticle Size on the Relaxation Rate of Supercoiled DNA in the Presence of Topoisomerase I

Stephanie P. Dohmeier and **Holly M. Tindal**

Latha A. Gearheart, Ph.D.

Department of Chemistry

Gold nanoparticles (AuNPs) exhibit a range of unique, interesting, and useful properties enabling new applications in optical sensing technology, medicine, and nanoarchitecture to continue emerging throughout science. Recently, AuNPs have become more common as catalysts in commercial applications despite their expense, and they are beginning to replace more traditional, heterogeneous catalysts due to their long term stability and ease of synthesis. There are many different factors affecting AuNP's catalytic ability, one of the most important being particle size. The purpose of our research was to investigate how unsupported AuNPs affect larger biological systems, in particular, the unwinding of supercoiled DNA in the presence of topoisomerase I (TOPO I). TOPO I randomly nicks DNA's sugar phosphate backbone allowing the supercoiled structure to relax. Solutions of AuNPs ranging from 40-190 nm were synthesized from gold salt using a seed mediated growth method. These AuNPs were added to reaction mixtures of TOPO I and supercoiled DNA, and the rate of DNA unwinding was monitored using a water-sensitive, DNA-intercalating, fluorescent dye. Our data infers that roughly 40 nm AuNPs most effectively catalyze the relaxation of supercoiled plasmid DNA. This is likely due to the greater surface area of the smaller 40 nm particles for a given amount of total gold in solution.

Political Success or the Fight for Untouchables' Freedom?

Mason Dunlap

Roy B. Campbell, Ph.D.

Department of History

During the 1930's the political debate between Mahatma Gandhi and Dr. B.R. Ambedkar was underway for the fight of National Independence and abolition of the caste system. Particularly, the Untouchables were struggling to find themselves fitting within the Indian Hindu society and these two political leaders began to fight for their freedom. The two leaders debated against each other throughout the 30s and at times the perception of their fight became misconstrued. Were Gandhi and Ambedkar true to their fight for freedom of the Untouchables and independence or did the power of political success take over?

The Sinaloa Cartel: Mysticism, Culture, and Community

Sara L. Elmore

Patrick H. Cosby, Ph.D.

Department of History

This paper focuses on the Sinaloa Cartel in Mexico. It examines three particular aspects: the reliance on mystical intervention, popular culture, and government corruption to trace the connection of drug lords to their communities. The paper moves beyond the melodrama of crime and violence played out in news reports, and situates the recent influence of drug cartels in a deeper history of regional strongmen in northern Mexico.

Decoding the Military: Dramaturgy of *Kimberly's Flight*

Taylor C. Figura

Miriam L. Ragland, M.F.A.

Department of Art, Theatre and Dance

The dramaturg in theatre serves as a assistant to the director in analysis of the script, research into the background of a script, and the practical application of this work onto the stage. The duty of a good dramaturg as a member of the artistic team is to bring together all aspects of a theatre production to create a piece that is a contribution to the community and society as a whole. The Presbyterian College theatre department's focus is to create original pieces of theatre as commentary on current social issues. The theatre department intends to stage a new production based on the *Life of Kimberly Hampton* in Spring 2014. Hampton was a PC graduate who died in combat during the current wars on terrorism. My research includes the story of Hampton's life, the history of our military presence in the Middle East, ROTC at PC, various acronyms and hierarchy within the military, as well as the weapons and equipment used by the military, with an emphasis on the role of women in military combat. The novel *Kimberly's Flight* will be the centerpiece of the production, but it was necessary to explore far beyond this text to create a worthwhile play. I researched supporting materials to complement the primary source. The dramaturg serves as the cohesive element in the process of devising a new script, from preliminary script development and research to a successful opening night.

Mirabehn: Gandhi's Disciple and Political Activist for India

Margaret C. Fleming

Roy B. Campbell, Ph.D.

Department of History

Mohondus Karamchand Gandhi is one of the most intriguing figures ever; he has influenced people all over the world, and continues to do so. He had an extensive group of followers and supporters and spoke to the hearts of millions all around the world. People from all walks of life connected to him and his teachings; including a privileged, young, English woman by the name Madeleine Slade. All her life Miss Slade knew that she was searching for some meaning to her life; when she discovered Gandhi, she knew she had found it. Madeline Slade decided she had to be with Gandhi, and underwent training so she would be prepared for life in Gandhi's ashram. After a year she left behind her traditional and privileged life and devoted herself to Gandhi, she became Mirabehn. But Mirabehn was more than simply a Gandhi groupie, this woman slowly but surely became active in all aspects of Gandhi's life goal; to better the Indian population and to gain independence from the British.

Development of Siderophore-Conjugated Antimicrobials

Brett S. Fowler, Merrill C. Still and Robert Y. Beesburg

Walter R. Ott, Ph.D.

Department of Chemistry

The purpose of this research was to develop a successful topical agent to *S. aureus* through an extensive synthesis. The topical agent was synthesized by converging two different compounds. The two compounds were 2-Benzyloxy-4,3,3-dimethyl-N-(2-propylcarbamoyl-ethyl)-butyramide and danoxamine. The convergent synthesis compound will be delivered by a process known as the “Trojan Horse” delivery system.

Republican o Democrata?: Educational Policies' Effect on Hispanic-American Voting Behavior in the United States

Laura Leigh Fox

Erin S. McAdams, Ph.D.

Department of Political Science

Previous research regarding Hispanic-American voting behavior tends to center around voters' gender, geographical origin, and length of citizenship. However, this article proposes that educational policies regarding language acquisition, specifically English-only versus bilingual techniques, may have an effect on the way Hispanic-American citizens vote. Analyzing data from the Census Bureau and Pew Hispanic Research Center between the years 2010 and 2012, this paper examines the presidential voting patterns of Hispanic Americans in all fifty states. This data is compared to the educational policies of all fifty states to determine whether there is a legitimate correlation between voting behavior and education policies for Hispanic Americans.

The English Perspective on the Amritsar Massacre

Jean L. Fulghum

Roy B. Campbell, Ph.D.

Department of History

My paper will cover the events leading up to the Amritsar Massacre in India. It will give a look at the reactions to certain reforms and legislation. More specifically it will study the days prior to the massacre. In order to understand this historical event, one needs to understand the upheaval that was present throughout India at this time.

Ecology and Ski Masks: Environmentalism in Mexico's Chiapas Rebellion

Zackary T. Furr

Patrick H. Cosby, Ph.D.

Department of History

The Zapatista movement in Chiapas, Mexico is a social movement associated with advocating for rural farmers and indigenous communities who have seen their agency and livelihood eroded in the wake of the NAFTA agreement. What makes this movement interesting, however, is its diversity, which become a rallying point for disenfranchised segments of Mexican society from socialist Native American villagers. I believe that conservationists can be added to the list of Zapatista sympathizers. The EZLN, while a social and political movement, has clearly defined environmentalist priorities stemming from a Mayan tradition of land use and a moderate, community centered approach to conservation.

Beyond Demons: The Huns

Zackary T. Furr

Richard R. Heiser, Ph.D.

Department of History

The Huns are defined in Roman history as the evil and uncontrollable force that brought western civilization to its knees. The Roman viewpoint, however, is not the exclusive source of information about the Huns.

There are numerous works from Asian, and even some Western scholars that suggest the Huns were more than the destructive horde described by Rome. Their nomadic lifestyle did not mean they lacked political, religious, and cultural structures. By examining the Eastern and Western perspectives on the Huns, we can gain a better understanding of who they were, how they lived, and where they ended up.

Analytic and Empirical Analysis of Rope Braiding

Pravin Gurung

Chad L. Rodekoeh, Ph.D.

Department of Physics and Computer Science

The presentation focuses on the friction between the yarns as they intersect with each other. In the braiding process, as the yarn intersect each other, each yarn bends over a small fragment of the other yarn. It is within this small fragment that friction occurs. As a result, there are different tensions within each yarn after each bend. Understanding this friction and the varying tension within the yarns will help us understand the rope formation during the braiding process as a whole.

Experimental Study of Young's Modulus of a Kevlar Yarn

Pravin Gurung, Forrest Deans and James E. Satterfield

Chad L. Rodekoeh, Ph.D.

Department of Physics

In this experiment, we study the stiffness and the elasticity of a single yarn and a single strand of a yarn by determining the Young's modulus of that particular yarn or strand. As we study the rope braiding mechanism closely, we realize that the yarns are under strong tension throughout the braiding process. Under this tension, the yarn may have the tendency to stretch depending upon their elastic properties. Understanding the elasticity of the yarn is one of the most important pieces in the rope-braiding puzzle. We measured the stretch in the length of the yarn under various tensions. In addition, the maximum breaking stress of a single strand is also studied. When two yarns interact with each other while going through the braiding process, many factors such as tension, friction, and the Young's Modulus come into play. This experiment will shed light on how two yarns react as they are under tension during the rope braiding process.

For the Love of Politics

Frances Christian Hainey

Richard R. Heiser, Ph.D.

Department of History

During the era of the Roman Republic, Marc Antony and Cleopatra created a relationship that has been deemed one of history's greatest love stories; however, this was not Cleopatra's first relationship. The partnership between Julius Caser and Cleopatra began on purely political terms. Cleopatra wanted to regain Egypt and become the sole ruler, and Caesar was interested in dominating Egypt due to a financial situation left by Cleopatra's father. It is hard to imagine that a relationship that was rooted in the desire for political power could ever transform into something more. The relationship between Julius Caesar and Cleopatra was a symbiotic partnership in which the love of politics prevailed, causing change within the Roman world.

The Effects of Democratization on Poverty in African Countries

Christopher B. Hall

Erin S. McAdams, Ph.D.

Department of Political Science

The study of democracy and its effects on poverty have been studied for many years. However, we have yet to find consistent results on the popular phenomenon. Scholars have debated that democratization can have either a positive, negative, indirect, inverse or simply no relationship on poverty at all. Furthermore, research on the effects of democracy on poverty in Africa has been limited. Through an in-depth comparative analysis of GDP growth and The Economist's democratization index in all African countries, this paper examines this relationship to determine whether democratization reduces poverty.

Early Christian Honor for Life

Andrew D. Hane

Richard R. Heiser, Ph.D.

Department of History

Brutality and lack of regard for human life characterized the classical Greco-Roman world, as evidenced by the legality and widespread practice of suicide, euthanasia, abortion, infanticide, pedophilia, gladiator duels, bloody execution shows, and a general lack of concern for the destitute and perishing. In contrast, the early Christian church honored human life by opposing societally accepted abuse and by caring for those in desperation, all because of a belief unique in the ancient world that it is each person's responsibility to care for the lives of others. Christian belief in the sanctity of human life led to values and practices strikingly different from those of the pagan Roman Empire.

A Novel Method for Screening and Typing of HPV in the Oral Cavity

Brooke N. Harrington

Amy Messersmith-Love, Ph.D.

Department of Pharmaceutical Science

In addition to cervical cancer and dysplasia, HPV is the cause of many oropharyngeal cancers. Currently, there is no screening test for oropharyngeal cancers and because of the large surface area and the small portion of cells that are actually infected with HPV, HPV screening tests that have traditionally been used for cervical screening have been found ineffective for use with saliva samples. Our objective is to design a new assay that can be used for HPV typing in saliva samples. Specifically to develop HPV DNA controls that can be used to design a new assay. Saliva samples were collected using the Oragene collection device and DNA was extracted with phenol: chloroform. All oral samples were screened for the presence of any HPV type using a nested PCR protocol. Plasmids containing full HPV genomes were transformed into bacteria for amplification, isolation, and application as a control in the development of a HPV typing protocol to be used for saliva samples. We completed transformations on five plasmids and isolate plasmid DNA. We were also able to identify the melt peaks of the HPV primers. Additionally, we determined that 24.4% of the saliva samples were positive for HPV.

Che Guevara: Doctor a Revolucionario

Shelby K. Harris

Clinia M. Saffi, Ph.D.

Department of Modern Foreign Languages

Ernesto Che Guevara creó una imagen revolucionaria por sí mismo a través de su transformación de un hombre común de trabajo como médico a un líder de la rebelión en América del Sur. Retratado como un hombre de honor en la película *Diarios de motocicleta*, Guevara se convirtió en una figura prominente de la cultura popular en América del Sur, que simboliza la rebelión y la revolución, sin embargo, su revolución se produjo a través de métodos conocidos de la guerra, lo que conduce a una perspectiva diferente de sus acciones.

Are Compounded Pain Gels Efficacious? The In Vitro and in Vivo Testing of Compounded Pain Gels Using Porcine Skin and a Formalin Pain Model.

Rachel L. Hartman

C. Scott Asbill, Ph.D. and Sarah M. Sweitzer, Ph.D.

Department of Pharmaceutical and Administrative Sciences

This study examined the transdermal delivery of four drugs, gabapentin, amitriptyline, cyclobenzaprine and baclofen, which are routinely compounded into topical pain creams/gels. These preparations are compounded frequently for the treatment of various types of pain including arthritic and neuropathic pain. Unfortunately, very little is known about the efficacy or safety of these compounded pain formulations. Each of the drugs was formulated using two commercially available bases (Lipoderm and Lipobase) and in a standard lecithin polaxamer organogel (PLO) and drug permeation was measured using porcine skin in modified Franz diffusion cells. Porcine skin is considered a reliable in vitro model for topical and transdermal testing and typically provides transdermal profiles that are similar to those found in humans. Compounded gabapentin was also tested in an in vivo preclinical pain model which consisted of injecting formalin into the hind paws of hamsters and comparing the animals pain-related behaviors to positive and negative controls. Only cyclobenzaprine and gabapentin exhibited significant transdermal penetration through the porcine skin. All of the formulations result in significant topical drug levels. Gabapentin was chosen for the animal studies based on its regular inclusion in compounded topical analgesic creams, its analgesic mechanism of action, its transdermal penetration and relative small molecular weight. Our studies demonstrated that local topical application of gabapentin produced a similar reduction in pain-related behaviors to systemically administered gabapentin (100 µg/kg) in the formalin pain model.

Roman Women in Politics in the Early Empire Period

Mary Catherine Heard

Richard R. Heiser, Ph.D.

Department of History

Women in the early Roman Empire were able to exert political power and have legal rights in matters dealing with guardianships and property. They were not allowed to vote or hold office. The abilities to exert political influence and have legal rights were reserved for aristocratic women who were closely connected to elite men, like the emperor, who held much of the empire's wealth and power. Roman women in the early Empire Era possessed very limited political power; however, upper class women were able to participate politically through marriage, belonging in the imperial family, and religious cults.

Assessment of Pro-inflammatory Factor Expression on Human THP-1 Macrophages

Bailey M. Hill and **Candler A. Paige**

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After surgery, macrophages play a role in surgical postoperative pain and wound healing. Interleukin-6 (IL-6) is a cytokine implicated in the incision pro-inflammatory milieu following surgery, and the levels of this cytokine parallels the development of chronic postoperative pain or the resolution of acute postoperative pain. We postulate that the induction of an anti-inflammatory phenotype in macrophages will drive the return of IL-6 to basal levels. We first conduct in vitro experiments to determine the basal expression levels of IL-6 in human macrophages in the presence of a pro-inflammatory stimulus, lipopolysaccharide (LPS). THP-1 monocytes (a human cell line) were differentiated with phorbol-12-myristate-13-acetate (PMA, 60 ng/ml, 48 h). Then, cells were incubated in the presence or absence of LPS for 0, 4, 24, and 48 hours. We quantified the expression of IL-6 through real time reverse transcription polymerase chain reaction (qRT-PCR), using CD11b, a monocyte marker, as the control housekeeping gene. We observed that IL-6 basal expression was minimal, and that LPS induced an increase of IL-6 picking at 24 hour after LPS incubation. Our housekeeping gene, CD11b remained unchanged at all times tested. These data set the basis for further experiments (currently ongoing) in which the anti-inflammatory molecule, ED2/CD163 will be evaluated under the same conditions in our setting. We anticipate that ED2/CD163 will pick at the time in which IL-6 start to return to basal levels. These studies will be the foundation to test the role of ED2/CD163 in the resolution of postoperative pain.

Analysis of Human Chorionic Gonadotropin Diet Products

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The human chorionic gonadotropin (HCG) diet is a popular diet program that utilizes supplements that contain HCG. The increased levels of HCG are thought to reduce and eliminate fat stores by increasing metabolic consumption to supply normal caloric needs to the body. Additionally, the HCG diet claims to promote a redistribution of fat without the adverse effect of increased hunger. Patients are able to obtain diet products such as these without a prescription, either through means of local nutrition and drug stores, or the Internet. Often, products such as these have been found to be adulterated with off-label active ingredients. Under current federal law, the Food and Drug Administration (FDA) does not directly regulate products classified as dietary supplements. This results in an increased risk to the consumer. The purpose of this study was to analyze the actual versus advertised contents of various forms of HCG diet products. HCG diet products obtained through the internet were analyzed for HCG content, as well as the presence of other unlabeled active ingredients. Analysis for HCG was performed by enzyme-linked immunosorbent assay (ELISA). After liquid/liquid extraction of the products, analysis for other active ingredients was performed by gas chromatography-mass spectrometry (GC-MS) and high-performance liquid chromatography-mass spectrometry (HPLC-MS).

The True Green Project: Building a Friendly Energy Consumption Model for Refrigerators

Joshua A. Hoffbauer

Chad L. Rodekohr, Ph.D.

Department of Physics and Computer Science

This presentation details the process and research which went into defining the equations used in building a friendly energy consumption model for refrigerators. This model has been implemented into the True Green Project's web tool.

The True Green Project: Testing the Refrigerator Energy Consumption Model

Joshua A. Hoffbauer and **Michael A. Porter**

Chad L. Rodekoeh, Ph.D.

Department of Physics and Computer Science

This presentation details the process and research which went into testing the True Green Project's energy consumption model for refrigerators. It will also discuss the experiments performed to test the model for accuracy and suggest improvements.

A Systematic Literature Review Assessing the Directional Impact of Managed Care Formulary Restrictions on Medication Adherence, Clinical Outcomes, Economic Outcomes, and Health Care Resource Utilization

Edana T. Holliday

Laura E. Happe, Pharm.D.

Department of Pharmaceutical and Administrative Sciences

There is extensive literature demonstrating that formulary restrictions reduce the pharmacy costs and utilization of restricted drugs. However, some research suggests that there may be unintended consequences of formulary restrictions on other patient outcomes. The objective is to conduct a systematic literature review assessing the direction of the relationship between managed care formulary restrictions on medication adherence, clinical outcomes, economic outcomes, and health care resource utilization. A total of 93 studies were included from 811 reviewed articles published in 1993 or later were identified from PubMed. Outcomes were categorized by type of outcome (medication adherence, clinical, economic, or health care resource utilization) and direction of association (positive, negative, or neutral/not significant) based on the relationship reported in each study. There is a strong evidence base demonstrating a negative correlation between formulary restrictions on medication adherence outcomes. Additional research on commonly used formulary restrictions, specifically prior authorization and step therapy, as well as on the association between formulary restrictions and clinical outcomes, is warranted.

Racial Bias Following Natural Disasters

Harrison R. Hopkins

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Department of Psychology

Innate racial bias is being examined in the context of a natural disaster, specifically in how “understandable” participants judged possible actions taken by a person of an implied race during a natural disaster scenario. The actions are of two groups, “dependency-based” or “autonomy-based.” Based on prior research it is hypothesized that the actions of a person implied to be of a minority (i.e., black or latina) will be judged as less understandable than the actions taken by a person implied to be white. Additionally, dependency-based questions should be ranked as more understandable than autonomy-based questions, also varying among race.

Utilizing PC's ICP-OES

Emily K. Hutson

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Department of Chemistry

Presbyterian College has had an inductively coupled plasma optical emission spectrometer (ICP-OES) for several years yet has only used it for sporadic research. Its operation was unfamiliar and it possibly had operational issues following its last period of downtime. The instrument has numerous applications and could be useful for supplementing classes in the current chemistry department curriculum. The research was done to identify possible uses for the instrument, test the functionality of our ICP-OES, draft operation procedures, and test methods of sample preparation. Processing of commercially available vitamin supplements and mineral-enhanced water was explored, and the instrument was tested by analyzing the amount of zinc and calcium in the mineral water. Several problems with the ICP-OES's setup and operation were discovered, noted, and resolved where possible. The instrument's operation and results were found to be adequate for future use if proper protocol is followed. Further improvements could be made with instrument maintenance. The instrument should be ready to use for a lab activity, class demonstration, or for more research.

The Impact of Age on Public Perceptions of Women in Direct Combat and the Military Gender Gap

Daniel H. Jenkins

Erin S. McAdams, Ph.D.

Department of Political Science

The ban barring women from serving in combat units of the United States military was recently repealed, allowing women to integrate into most direct combat units by 2017. This article examines theories of life-cycle effects, period effects and generational effects in an analysis of the varying level of public support across different age groups for women in direct combat. Analyzing data from a 2013 Pew Research Center survey about perceptions of women in combat and military effectiveness, this article draws conclusions regarding which theory best explains these varying levels of support and what normative implications might be a result of women in combat.

The Stepping Stone to Adolescent Pregnancy

Sterling D. Jenkins

Robert H. Freymeyer, Ph.D.

Department of Sociology

Although rates of adolescent pregnancy in the United States have declined in recent years, societal concern seems to have increased. This study uses data from the 2012 General Social Survey, a nationally representative survey, to determine whether education plays a role in adolescent pregnancy. Previous research has shown that education does influence teenage pregnancy. Females with a higher education level are more likely to delay childbirths, while females with a lower education level have children earlier. Findings from this study could provide additional information to aid in the continued reduction of adolescent pregnancy.

The Need to Confess: Robert Browning's Dramatic Monologues

Danielle F. Jolly

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Department of English

It is part of human nature to feel compelled to confide in another person when something is bearing on one's heart. Sometimes, the confession is due to an immense guilt felt while other times it is more of a boastful confession. A common trope within Robert Browning's dramatic monologues is the speaker's participation in some sort of a confession, whether it is intentional or unintentional. In other words, the narrators in Browning's poems often feel compelled to reveal something that they have kept inside because doing so is a way of their coming to terms with their identities; they can no longer hide a certain part of themselves and therefore feel the need to profess their secret. Three of Browning's poems that illustrate this concept are "The Bishop Orders His Tomb at Saint Praxed's Church," "Count Gismond," and "My Last Duchess." The way in which the speakers in each work partake in said confession, however, varies among them. The form in which the poems are written, the dramatic monologue, serves as a way of revealing the confessions to the reader. Our fascination with the dramatic monologue as a form hinges on our interest in these very confessions.

Marriage as a Socioeconomic Necessity: *Wuthering Heights*

Patrick M. Justice

Jerry J. Alexander, Ph.D.

Department of English

In Emily Brontë's *Wuthering Heights*, both love and lust have significant implications. Catherine's actions are largely motivated by her lust for Edgar Linton's money and affluent social class at the beginning of the novel. While the term "lust" is typically associated with sexual desire, Catherine's need for financial and social security is almost a primal one, something that makes Edgar seem sexually desirable and suitable for marriage. However, when Heathcliff returns to *Wuthering Heights* after three years, Catherine's real love emerges for him partly due to his newfound wealth. Now, he is more capable of satisfying her physical and economic lust. All of the decisions made by Catherine can be explained by examining 19th-century class structure and the decisions women typically made at this time with regard to spouses. The reasoning behind Catherine's decisions is evident: she chooses the person who would put her at the greatest socioeconomic advantage, per societal expectations of the time. While the socioeconomic and Marxist components of Emily Brontë's *Wuthering Heights* have been widely debated by many scholars, it is fair to say that sufficient research has led to a definitive conclusion regarding Catherine's marriage. It is clear that Catherine's marriage was purely one of social necessity and obsession for wealth and power, rather than one of love. My arguments and the arguments of established scholars will adequately demonstrate that this relationship was nothing more than a sham, a clever ruse inspired by society to ensure economic stability for Catherine at Heathcliff's expense. In the end, this unfortunate union of Edgar and Catherine only led to insurmountable suffering for all parties involved.

The Desire for Youth

Summer L. Kennedy

J. Justin Brent, Ph.D.

Department of English

The first world country we live in today creates a culture in which superficial ideals are prioritized and heavily promoted in order to maintain the idea of a beautiful society. The institution of these ideals creates unattainable standards for the people living in that society; one of these standards is that of eternal youthfulness. Society has an aversion to obvious signs of aging because it breaks standards that have been set for centuries. The process of aging visibly weakens the body as it starts its eventual ascent into death; a taboo topic in our society. Society rejects aging because of its close relationship with death, thus creating an environment where youth is highly sought.

Presbyterian College Athletics in the Division I Era

Andrew C. Kocis

J. Tobin Turner, Ph.D.

Department of Economics and Business Administration

Presbyterian College faces several unique challenges at the Division I level, namely its distinction as the smallest overall student body of all NCAA Division I programs as well as facing a clear resource and infrastructure disadvantage in comparison to most Division I institutions. This paper explores the utilization of alternative benchmarking methods that take a deeper look at the total performance of the student-athlete as well as investigating how well an institution uses its limited resources to achieve on-field success. I hypothesize that these alternative benchmarking methods will reveal that the Presbyterian College Athletic Department has performed at a higher level during its short time in Division I than the institution's number of wins indicate.

The Amritsar Massacre and its Effect on the Indian Nationalist Movement

J. Elizabeth Langley

Roy B. Campbell, Ph.D.

Department of History

On April 13th, 1919 British Brigadier-General Reginald Dyer ordered his troops to open fire on a square full of protesters in Amritsar, India, killing or injuring hundreds. This paper explores the repercussions that Great Britain's unwillingness to punish General Dyer caused in both British and Indian politics with a focus on the shift in the strategy of the Indian Nationalist movement from cooperation to noncooperation.

Peer Group Behaviors and Global Self-Worth: Investigating Adolescents' Global Self-Worth, Internalizing Behaviors, and Externalizing Behaviors

Lucia M. Leahy

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This study investigated the relationship between adolescents' global self-worth, internalizing behaviors and externalizing behaviors. Self-reported surveys measuring global self-worth and peer-reported surveys measuring internalizing and externalizing behaviors were administered to 111 7th through 9th graders who participate in a local mentoring program called CHAMPS. The participants were surveyed over a two-year period. Results revealed a significant negative correlation between adolescents' global self-worth and internalizing behaviors and no significant relationship between an adolescent's global self-worth and externalizing behaviors. Global self-worth showed a small drop from 2011 to 2012, whereas internalizing behaviors remained stable and externalizing behaviors decreased. The results of this study may be used by the CHAMPS program to direct future behavioral intervention programs.

Assessment of Pro-inflammatory Factor Expression on Human THP-1 Macrophages

Marina Y. Leon

E. Alfonso Romero-Sandoval, M.D., Ph.D.

Department of Pharmaceutical Sciences

After surgery macrophages play a role in surgical postoperative pain and wound healing. Interleukin-6 (IL-6) is a cytokine implicated in the incision pro-inflammatory milieu following surgery, and the levels of this cytokine parallels the development of chronic postoperative pain or the resolution of acute postoperative pain. We postulate that the induction of an anti-inflammatory phenotype in macrophages will drive the return of IL-6 to basal levels. We first conduct in vitro experiments to determine the basal expression levels of IL-6 in human macrophages in the presence of a pro-inflammatory stimulus, lipopolysaccharide (LPS). THP-1 monocytes (a human cell line) were differentiated with phorbol-12-myristate-13-acetate (PMA, 60 ng/ml, 48 h). Then, cells were incubated in the presence or absence of LPS for 0, 4, 24, and 48 hours. We quantified the expression of IL-6 through real time reverse transcription polymerase chain reaction (qRT-PCR), using CD11b, a monocyte marker, as the control house-keeping gene. We observed that IL-6 basal expression was minimal, and that LPS induced an increase of IL-6 picking at 24 hour after LPS incubation. Our house-keeping gene, CD11b remained unchanged at all times tested. These data set the basis for further experiments (currently ongoing) in which the anti-inflammatory molecule, ED2/CD163 will be evaluated under the same conditions in our setting. We anticipate that ED2/CD163 will pick at the time in which IL-6 start to return to basal levels. These studies will be the foundation to test the role of ED2/CD163 in the resolution of postoperative pain.

Activation of Spinal Cord Neurons in a Rodent Model of Sickle Cell Vaso-Occlusive Crisis

Kayla F. Lewis

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Department of Pharmaceutical and Administrative Sciences

Sickle cell disease is one of the most common chronic diseases that occur in children. This disease is characterized by vaso-occlusion and rigidity of the erythrocytes in the blood. These children have recurrent episodes of inflammation in their cells which will eventually progress to the organs. There is more research to be done in order help develop effective treatments that target pathophysiological changes and clinical obstacles. Our model of sickle cell disease focuses on a certain chemical mediator, Endothelin-1 (ET-1). Endothelin-1 is released in the body in response to vaso-occlusive crisis. This study tests the hypothesis that vaso-occlusive crisis lead to activation of spinal cord neurons associated with pain processing. Postnatal day 7, 21, or adult rats were administered intraplantar saline, Endothelin-1 or control naive. Spinal cords were collected at 2 hours an changes in protein kinase C gamma was assessed by immunohistochemistry. Both sex and age-related changes in protein kinase C gamma were observed supporting activation of spinal cord neurons in a vaso-occlusive crisis. This study suggests that inhibitors of protein kinase C gamma could be useful therapeutics in the treatment of painful vaso-occlusive crisis associated with sickle cell disease.

Use of Intravenous Haloperidol in An Inpatient Setting: a Literature Review and Survey of Healthcare Professionals

Lauren M. Linder

Kathryn N. Freeland, Pharm.D.

Department of Pharmacy Practice

Intravenous (IV) haloperidol has continuously been utilized for delirium, agitation, and psychosis in institutions, despite an FDA warning in 2007 alerting clinicians to the possibility of life-threatening cardiovascular effects associated with IV administration of haloperidol. This literature review and survey of healthcare professionals will provide insight into clinical rationale for the use of IV haloperidol when used for psychosis, agitation, and delirium in a non-psychiatric setting and identify areas for pharmacy interventions for proper drug utilization. The objectives are: 1. Determine clinician awareness and perception of IV haloperidol 2. Assess clinician preference for use of IV haloperidol in delirium, agitation, and psychosis within ICU settings. 3. Compare evidence-based medicine with responses from clinician survey. An anonymous web-based survey was distributed to physicians and nurses at Self Regional Hospital in Greenwood, SC. Providers received a survey to assess their knowledge, experience, and preference for using IV haloperidol based on their role in the healthcare team. Other data collected included demographic data, dosing and frequency of use, and practice setting. The literature review identified delirium as the diagnosis with the most evidence for haloperidol, but the articles reported negative patient outcomes due to development of Torsades de Pointes. Psychosis reported mixed outcomes and agitation yielded all positive outcomes. We will compare these findings to the responses from the survey and present clinician perceptions of the safety and utility of IV haloperidol in patients while comparing responses based on practice setting, clinician role, years in practice, and demographic data.

Use of Prescription Stimulants Among Students in Healthcare Training Programs: A Survey of Pharm.D. Candidates.

Casey M. Mabus and **Lauren M. Linder**

Kathryn N. Freeland, Pharm.D.

Department of Pharmacy Practice

A survey of medical students indicated that up to 15% of respondents used stimulants while in medical school. Similar studies in physician assistant and osteopathic students found an average of 10.4% of participants used stimulants to enhance academic performance. This study was designed to assess the rate of stimulant use among student pharmacists as well as to examine motives and perceived benefits from stimulant use that increase the likelihood of using stimulants for nonmedical purposes. An anonymous, voluntary web-based survey was administered to student pharmacists in South Carolina. Study participants were asked about Attention Deficit Hyperactivity Disorder diagnosis, history of stimulant use, frequency and type of stimulant used, reasons for use, and perception of use among peers. Descriptive statistics were used to analyze the data. The survey included 157 responses, of which 24% of students reported using stimulants. Of these, 76% reported using them for ADHD, and 71% using them to enhance studying. Forty-one percent of students believe their classmates use stimulants to improve academic performance, with 50% of participants believing their classmates use stimulants very frequently. Overall, the prevalence of stimulant use is less than what students perceived it to be. The most common reason for stimulant use was to manage ADHD. Data collection is ongoing for survey results from pharmacy programs; once complete other healthcare training programs in the state will be assessed and compared to survey data and published literature.

The Black Revolution: The One That Everyone Wished They Could Ignore

Fredrick L. Marshall, Jr.

Patrick H. Cosby, Ph.D.

Department of History

During the nineteenth century in the United States the progression of equality for all humans defeated its biggest challenge. That challenge was ridding the nation of slavery. Of course, there were many actions taken to end slavery before this time period, but slavery in the United States was greatly disturbed during this time period. One key influence on this period was the Haitian Revolution. The revolution expanded slavery in the United States, inspired radical abolitionist such as John Brown, and inspired thousands of blacks to partake in the Civil War. The Haitian Revolution is American history.

Elizabeth Barrett Browning: Slavery, Feminism, and Empowerment

Meghan J. Mast

Jerry J. Alexander, Ph.D.

Department of English

Elizabeth Barrett Browning's poem "The Runaway Slave at Pilgrim's Point" is powerful, hitting readers' emotions while causing them to juggle their definitions of right and wrong. To the abolitionist movement in America, it was a fervent attack against the horrors of slavery, but to the feminists of England, it was an exposition of women's need for empowerment. Perhaps more importantly, however, to Elizabeth Barrett Browning herself, the poem represented her relishing in newfound freedom from her father, even while mourning the death of that relationship, and epitomized the power-control dynamics so apparent between her and her father through the female slave's story.

A Social History of Oak Ridge, Tennessee

Heather L. McGowan

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The Manhattan Project, the top-secret government project that created the atomic bombs dropped on Hiroshima and Nagasaki, is a well-known scientific venture in American and world history. Stories of great scientists, expanding democracy, and American influence through the harnessing of nuclear power dominate the scholarship about the Manhattan Project. While this pervading story paints an important backdrop, the stories of regular citizens who worked on the sites of the Manhattan Project at Oak Ridge, Tennessee, Los Alamos, New Mexico, and Hanford, Washington, are often omitted from the history of the project. Much of the secondary research about Oak Ridge reaches a mutual consensus that workers were helpless victims of health damages as a result of their time spent working on the Manhattan Project at Oak Ridge. Workers in jobs from the very top to the very bottom assert, through stories of their lives before, during, and after the war, that they were not completely helpless government victims. They did not have total autonomy over their lives while working on the Manhattan Project, but workers acknowledged this fact and the risks that it brought when they accepted a secrecy-laced job to work to win the war at Oak Ridge. In fact, workers managed to live vibrant lives amid the secrecy, 24-hour factories, mysterious jobs, and bureaucracy that pervaded every aspect of life at Oak Ridge.

Testing Dendroclimatology

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The idea of climate change has become increasingly prominent within the world vocabulary today, as concern over the effect of global warming has continued to develop. Climate change is a broad term that is used to describe a variety of modifications that can occur within a particular environment, and is typically measured through statistical analysis of various environmental properties, such as rainfall amounts or temperature changes. Dendroclimatology is the process of using the tree-rings to analyze the impact of climate change on tree growth. The practice has supported changing weather patterns on a yearly basis in the environments in which it has been tested. However, dendroclimatology has not been tested in all environments and climates worldwide. The objective of this research is to determine the validity of dendroclimatology as a proxy for climate change in a temperate climate; in particular an ecosystem that is dominated by oak and hickory mixed hardwoods, as well as the human preserved ecosystem on the nearby campus of Presbyterian College.

Religion & the Death Penalty: Who Really Has the Final Say?

J. Robert Monroe, III

Erin S. McAdams, Ph.D.

Department of Political Science

Previous research focusing on the death penalty suggests many different opinions across America on the morality of this policy. Therefore, exploring how different religious denominations in America view the practice of the death penalty will help to display the wide spectrum of viewpoints across the country on the issue of capital punishment. Studying data of each state's religious composition of Catholics and Evangelical Protestants and which states have the death penalty, this project identifies whether the states with a higher Evangelical composition practice the death penalty, while states with a higher percentage of Catholics do not. The expectation for this research is that Evangelicals might support the death penalty because of their literal interpretation of the Bible, while Catholics might oppose the practice because of their views on death and the human life.

Multivariate Statistical Analysis Reveals Effect of Genotype and Environment in Maize Microbiome Composition

William J. Moore, III

Stuart G. Gordon, Ph.D.

Department of Biology

Metagenomics is a dynamic field made possible by technical advances that allow us to study microbes that cannot be cultured. This allows for a more complete picture of microbes living in myriad environments. One of these environments is the maize phyllosphere (leaf surface). To characterize the maize phyllosphere microbiome, a diverse set of maize inbred lines (nested association mapping founders) was grown in two different conditions (pots and field). The phyllosphere was sampled at multiple developmental stages, DNA was extracted and 16s rRNA gene amplicons were pyrosequenced. Using a multivariate analysis pipeline that computed distance measures, ran a permutational multivariate analysis of variance, and created three types of visualizations, 16s metagenomic data was analyzed using several measures of beta diversity (different distance measures). These measures of beta diversity had different emphases including composition, relative abundance, raw abundance, and proportions. Environment (field vs. pot) had a greater impact on phyllosphere composition, relative abundance, and raw abundance than maize genotype and maize heterotic group on the maize phyllosphere microbiome.

True Green Project: Modern Worldviews That Shape Our Environmental Identity

Meredith O. Morgan

Chad L. Rodekohr, Ph.D.

Department of Physics and Computer Science

A person's stance on the environmental debate is largely determined by their worldview. Through the examination of various resources, three main worldviews are contrived that represent a majority of the population's reasoning for identifying with a particular stance.

Render Unto the Loa: Papa Doc, Voodoo Rule, and the Principle of Hegemony

David Mruz

Patrick H. Cosby, Ph.D.

Department of History

Hegemony is defined as the rule of authority by way of implied powers. It is the submission of a people based upon what they perceive as opposed to the reality of their plight. From 1957 to 1971, the physician and politician Papa Doc Duvalier turned a hundred years of mulatto rule on its head by winning the support of the black masses in adopting their faith of derived African traditions in the form of voodoo. By using his medical and local cultural knowledge to become the image of the voodoo spirit of death, Baron Samedi, Duvalier secured the hearts and souls of his people and transformed them into a force that would kill his opposition. In understanding and ruling by the beliefs and superstitions of his people, Duvalier died as the only black leader of Haiti whose regime existed beyond his death.

The Preparation of 2-Pyridyl-2'-(4-*tert*-butyl-thiazolyl)amine

F. Michael Nicholson and Ashton M. Avent

Edward M. Gouge, Ph.D.

Department of Chemistry

Bidentate ligands containing two heterocyclic rings each containing a N atom in the ring, adjacent to the C atom in the ring that is bound to a bridging N-H group have been used to bind several metal cations. In the case of the Cu (II) cation, two such ligands bind the cation, through the ring of N atoms, to produce a CuN₄ chromophore. A structural feature of this chromophore is the dihedral angle formed by the planes of the dihedral angle formed by the planes of the two ligands. The titular molecule is the third in a series that differ in the bulk group on the number 4 position of the thiazole, therefore changing the value of the dihedral angle.

Dynamics in Psychology: The Interaction Between Self-Esteem and Self-Control

Ashley K. Norton

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Department of Psychology

The current research is part of a multi-phase study intended to identify and explain the relationship between self-control and self-esteem.

Substantial evidence supports a link between these two self-processes, but remains unclear whether there is a cause and effect relationship.

The present study examines how participants react to a self-esteem manipulation. The main hypothesis is that people who are made to think about their positive attributes will have higher self-control while those made to think about their negative attributes will have lower self-control.

The results from this project elaborate on how mental processes interact in complex ways.

Haitian Influence on the New Orleans Culture Manifested in the Celebration of Mardi Gras During the 1920s

Laura D. Nowell

Patrick H. Cosby, Ph.D.

Department of History

With the migration of thousands of Haitians to New Orleans, Louisiana, during the latter part of the eighteenth century and early nineteenth century, the integration of the Haitian culture into New Orleans occurred. I investigated the presence of Haitian culture represented in the celebration of Mardi Gras. The celebration is an element of New Orleans society which embodies the cultural elements characteristic of this society. The research focuses specifically on the period of the Jazz Age during the 1920s because this period was a time of transformation culturally throughout the U. S. South. From this research, I conclude that the transformation of the celebration of Mardi Gras in New Orleans during the Jazz Age of the 1920s illuminates a crucial moment in the development of gender, racial, and religious relations in the U. S. South during a period of rapid social change.

Metagenomics Indicates that Microbial Communities of Fish Guts Vary by Both Trophic Level and Habitat

K. Rachael Parks

Jeffrey M. Grim, Ph.D.

Department of Biology

The microbial community associated with the fish gut is complex and dynamic, and the communities vary with the ecological niche of the host, which includes dietary and environmental factors. This study compares the variation in gut microbial composition by examining the intestinal microbiota from two pairs of species from near-shore, temperate and near-shore, polar marine habitats. Spotted sea trout (*Cynoscion nebulosus*) and flathead mullet (*Mugil cephalus*), two species which utilize different trophic niches (carnivore and herbivore, respectively), were sampled from Charleston Harbor, Charleston, S.C. Additionally, two Antarctic notothenioid fishes (blackfin icefish, *Chaenocephalus aceratus* and black rockcod, *Notothenia coriiceps*) to represent unique trophic levels in near-shore habitats of the thermally stable Southern Ocean. Statistical analyses of the 16S rDNA reveal that microbial communities can be distinguished by fish species within habitats ($p < 0.05$) and between habitats ($p < 0.01$), and as well as within all species by trophic niche ($p < 0.01$). These data reveal that both abiotic and biotic factors influence the the gut microbiological community of fishes, and reinforce the idea that the composition of gut microbiota may be species-specific.

Who's Listening In? A Scientific Assessment of the Bacteria on iPhones.

K. Rachael Parks and **Harry E. Hicklin, IV**

John C. Inman, Ph.D.

Department of Biology

This experiment seeks to explore the potentially harmful bacteria found on a commonly used item, the iPhone. Five iPhones were collected and bacteria were isolated and cultured for assessment. Determining the bacterial populations on the iPhones was completed through the use of various growth media as well as various staining techniques. Resultant growth revealed strains of *Staphylococcus*, and further investigation indicated the presence of Methicillin-resistant *Staphylococcus aureus* (MRSA), a bacteria responsible for many skin and soft tissue infections due to its antibiotic resistance. These results support the presence of harmful bacteria on iPhones.

Good Grief? Biologically Useless or Evolutionary Benefit?

Minhanh T. Pham

J. Justin Brent, Ph.D.

Department of English

Grief has been examined mainly for its social and psychological components. However, knowing that grief can cause the body to experience stress it is important consider that there are some biological components of grief that humans have adapted. While it is common to observe the benefit of grieving from a social and psychological perspective, it is worth examining the biological benefit grieving provides when considering it can be harmful by leading to depression and causing stress. Studies show that when the body experiences grief people commonly experience physiological responses such as high levels of the cortisol hormone, as well as crying. By gaining insight on the physiological process of grieving and its evolutionary benefit, findings may suggest that crying, as part of the grieving process, provides an evolutionary benefit in terms of biological signaling for help and a sanitation mechanism to counter the harmful imbalance of cortisol levels. By uncovering the physiology of grieving, methods of dealing with grief in terms of treatment, depression preventative measures, counseling, and funding can be improved.

HPV 16 Integration in Cervical Lesions Associated with Cervical Intraepithelial Neoplasia

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Amy Messersmith-Love, Ph.D.

Department of Pharmaceutical Science

High risk human papillomaviruses like HPV 16 are the causative agent of cervical cancer. HPV 16 integration into the human genome increases the risk of developing cervical lesions and cancer. In HPV's episomal state, the E2 gene product regulates expression of E6 and E7, HPV's major transforming proteins. Because breakage of the HPV genome occurs in E2 during integration, viral integration can be determined by the E2/E6 DNA ratio. Identification of HPV 16 integration in cervical cells of various morphological stages could improve cervical screening protocols. The HPV Integration Assay (HIA) was developed to determine HPV 16 integration status in cervical samples by comparing E2/E6 Cq ratios determined using real-time PCR. The HIA proved useful in the analysis of clinical samples with 6 patients demonstrating complete integration and 18 patients demonstrating less than 50% integration. Comparison of HPV 16 integration to clinical diagnosis did not produce statistically significant results due to small sample size. Additional samples will be necessary to determine the clinical significance of the HIA.

Women: When Will They Receive Their Respect?

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Laura J. Crary, Ph.D.

Department of Art, Theatre and Dance

In the world of art, there are many great names that deserve recognition such as Picasso, Michelangelo, Leonardo Da Vinci among others. One can make a good pitch for why these artists deserve the respect they receive in all aspects. However, they are all males. The sense of curiosity begins to grow as the number of women in art history conversation almost ceases to exist. There are many names recognized as accomplished women artists, but what value do their names actually hold? There are few female artists, who can be compared to the likes of John Sloan, Botticelli or George Bellows, when it comes to artistic value. Why haven't women artists been valued? In the late 20th century, performance art began to slowly sweep the world of modern art. Marina Abramovi made revolutionary bounds that shaped art. Her works of art are breathtaking and moving. Rachel Whiteread's still life moves audiences across the nation with her massive and powerful pieces. These women made extraordinary leaps and bounds but still do not receive the praise as male artists. What do women have to do in modern history to earn their much-deserved respect in modern history?

Masked Ladies: Women's Presence in the Zapatista Movement of Chiapas, Mexico

Mary Alice Reed

Patrick H. Cosby, Ph.D.

Department of History

I will be looking at the presence of women in the political Zapatista movement of 1994 in Chiapas, Mexico. I will be talking about how they were a valued presence in the movement within a patriarchal society. Their published list of demands will be a center point of my presentation.

Iranian Women Artists

Margaret L. Richardson

Laura J. Crary, Ph.D.

Department of Art, Theatre and Dance

For my research, I explore various mediums of modern art made by Iranian women artists who use their talents to comment on current social and political issues that they face personally within their nation. These artists include: Shirin Neshat, Marjane Satrapi, Maryam Hashemi, and Parastou Forouhar. I investigate how each of these artists comment on gender roles they witness and endure, as they connect to political tensions in the Middle East with their art. In addition, I relate these works of art to the age of Orientalism and how the depiction of gender and culture from the western perspective influenced modern day women artists in various and unique ways.

Cricket, Colonialism, and Community: How Cricket Reflected the Socio-Political Realities of Colonial India

Jacob T. Rogers

Roy B. Campbell, Ph.D.

Department of History

History is a story, not unlike a great novel, with themes, characters, narratives, and moments of suspense. But what separates history from a novel or book is that its pages are unfolding even now, revealing a never-ending narrative. But there are major players in this story, and one such character is the British Empire. At one point in history, the sun never set on the British Empire, as their territory spanned the globe from the Americas to the Indian Subcontinent. The loss of India in 1947 seemingly put the final nail in the coffin of the British Empire, making the narrative of Indian independence an incredibly important one within the story-arch of the British Empire. Gandhi and the Indian Nationalist movement are the major characters in this story and their influence extended even to the cricket field. One would think that the Indians would reject or abandon such a British game in order to show their desire for separation, which is why Dennis Judd asks, “Why, while they fought British imperialism, did Indians so passionately embrace English games such as cricket?” Yet cricket was, and still is, wildly popular in India. Cricket reflects the contradictory nature of colonialism as something that, at a basic level, is neither wholly bad nor wholly good.

The Last Enemy: Myth and the Afterlife in the Literature of C.S. Lewis & J.R.R. Tolkien

Jacob T. Rogers

Peter H. Hobbie, Ph.D.

Department of Religion and Philosophy

Themes of death and the afterlife are consistently present within the literature of C.S. Lewis and J.R.R. Tolkien. This esteemed duo has published some of the most widely read fantasy novels of the last hundred years. Their portrayals of life after death have greatly impacted the way many people, particularly Christians, think about death, hell, and heaven. How one thinks about the afterlife is important in that it affects how they live in the here and now. Through their myths and writings Lewis and Tolkien were able to convey divine truths about how the gospel shapes us and helps us bring about the coming Kingdom of God in the present. C.S. Lewis and J.R.R. Tolkien knew that myth as they understood it spoke an infinitely great deal of truth about the world and life. This belief applied most importantly to what they believed to be the myth that really happened, that is, the life, death, and resurrection of Jesus. Through their fiction, these two authors were able to convey their thoughts about metaphysical reality as well as their imaginings of the afterlife. Lewis and Tolkien used their myths and fiction as a vehicle to understand the meaning of life via imagery of heaven and hell. Though their imagery is not necessarily Biblical, they understood that God is planning to renew his creation; not abandon it.

The True Green Project: Household Heat Flow and Air Conditioners

Paul H. Sanders

Chad L. Rodekoeh, Ph.D.

Department of Physics

This paper explores modifications throughout the summer of 2013 to the True Green Project in an effort to increase the accuracy and efficiency of our program. Specific modifications include a revision of the Heat Flow Notebook and an in depth renovation of air conditioners to make the program more accurate.

The Study of Energy Saving Light Sources

Paul H. Sanders and **Grayson M. Mills**

Chad L. Rodekoer, Ph.D.

Department of Physics

Throughout this presentation we take a look at the comparison of compact fluorescent lamp (CFL) and fluorescent tubes, to incandescent light bulbs. This comparison consists of the operating cost to the owner, as well as lifespan, color emitted, and purchase prices. We also take a look at the design of a CFL and their use in a residential area. However as well as these CFLs perform they do come with some undesired effects. Total Harmonic Distortion (THD) and Power Factor (PF) are ever-present issues with CFLs and are addressed in this presentation.

Absurd Masculinities: Constructing Masculinity in Samuel Beckett's *Waiting for Godot* and Harold Pinter's *The Dumb Waiter*

MaryBeth Schaffner

Emily L. Taylor, Ph.D.

Department of English

This project explores the ways that masculinity is constructed in absurdist plays that feature two male protagonists. Absurdist theatre originated after World War Two and often features nonsensical language and stagnant plots; however, each absurd play provides unique commentary on the changing world from which it came. Using Judith Butler's notions of gender performativity and David Bushbinder's definition of masculinity through differentiation, I will contrast the performances of Pinter and Beckett's male protagonists to better understand the changing notions of masculinity following the violence and destruction after World War Two.

Annie Besant: The Impact of a Woman and Her Religion on India

Christy E. Schofer

Roy B. Campbell, Ph.D.

Department of History

At the age of 70, an Irishwoman named Annie Besant is standing on a train platform somewhere in rural India. Preaching for Indian nationalism and other social reforms, this white woman would eventually become president of the Indian National Congress in 1917, something few Indians could have predicted. Even more extraordinary, she was a Theosophist, a religion that many doubted and little respected. However, it was Theosophy that lead Besant to be so influential in early twentieth century India.

Pocketbook Voting and Trends in Recent Elections: Change in Politics or Change in Pockets?

Bryan K. Shepherd

Erin S. McAdams, Ph.D.

Department of Political Science

The U.S. Presidential Election of 2012 had a focus much different than many of its recent predecessors. Because of the circumstances surrounding the government, particularly the great recession of 2008, the candidates were critiqued highly on their economic strategy and how their other policies would affect the national economy. This study examines whether U.S. citizens are voting based on the political views of the candidates or whether their own personal political opinions have a bigger impact on what party they affiliate. Specifically, the study will examine which variable (ideology or socioeconomic status) has the biggest correlation with partisanship.

Action Identification and the Elite Athlete: How Mental Framing Influences Performance in Athletes

Bryan K. Shepherd

Jay L. Michaels, Ph.D.

Department of Psychology

According to Action Identification Theory (Act ID), people understand their actions as simple or complex, and people can shift between these action perceptions. The process by which people alter their mental conceptualization of actions transforms performance and skill by allowing people to most efficiently think about what they are doing. This presentation extends Act ID theory to understand athletic performance. Act ID provides deep insight into how athletes transform from novices to experts and can explain what happens when an experienced athlete “chokes” under pressure. These insights offer new applications of Act ID that can help athletes, or anyone who pursues excellence, better control how they perceive their actions to maintain an optimal mental state.

Which Gum is Most Effective in Killing the Bacteria *Staphylococcus Epidermidis*?

D. Danielle Shuler and Estefany C. Medina

John C. Inman, Ph.D.

Department of Biology

In this project we are testing the effects of various oils including: cinnamon, peppermint, clove, and wintergreen oil and their respective gum's effects on the killing of the bacteria *staphylococcus epidermidis*. The purpose of experimentation with the oils is to serve as a positive control. The data collected from experimentation show cinnamon oil is most effective in killing the bacteria as demonstrated through a larger zone of inhibition.

Political Shifts: Examining the Correlation between Congressional Approval and Partisan Polarization within Congress

Justin L. Smith

Erin S. McAdams, Ph.D.

Department of Political Science

Congress has become more polarized recently insofar as they have become more partisan. This partisanship within Congress has also produced an electorate that is displeased and frustrated with the Congressional body as a whole. The result of this is that Congressional approval has gotten lower. Yet previous research has not investigated the correlation between polarization and Congressional approval. Through using data from DW Nominatate and the Gallup Poll, this paper examines Congress over the last thirty years to see if there is any correlation between Congressional approval and polarization within Congress. This paper will also consider possible consequences of a more polarized Congress.

Is Perceived Athletic Competence Beneficial to Adolescents?

Sherece A. Smith and **Lucia M. Leahy**

Brooke C. Spatta, Ph.D.

Department of Psychology

In this study, athletic competence, global self-worth, and peer group behaviors were examined in 151 academically promising 7th through 10th grade students involved in the CHAMPS program (Communities Helping, Assisting, and Motivating Promising Students), a local student support program hosted by Presbyterian College. In the current study, CHAMPS students self-reported their athletic competence and global self-worth (gsw); internalizing and externalizing behaviors were peer-reported. Results revealed significant correlations among the measures. Those who perceived themselves as athletically competent reported significantly higher levels of gsw. Participants rated those who identified themselves as athletically competent as demonstrating fewer internalizing behaviors. For example, higher perceived athletic ability was associated with lower levels of anxiety/depression, withdrawn behavior, helplessness, self-depreciation, and victimization. Furthermore, the participants who perceived themselves as athletic also exhibited the most peer reported externalizing behaviors. For example, higher perceived athletic ability was associated with increased levels of argumentativeness, dishonesty, disruptiveness, and aggression. The current study has many benefits for the students of CHAMPS. The study reveals benefits and costs of sports competence. The research collected will assist CHAMPS in obtaining funding from granting agencies to create the most effective program.

Impact of Health Literacy in a Diabetes Self-Management Education (DSME) Program.

Stephanie A. Smith

Kayce M. Shealy, Pharm.D. and Tiffaney B. Threatt, Pharm.D.

Department of Pharmacy Practice

The purposes of this study were to determine whether a patient's health literacy level correlates to 1) baseline hemoglobin A1C (A1C) level, 2) A1C at follow-up, and 3) attendance in a DSME program. Health literacy was assessed using the REALM-SF and NVS tools during initial appointments for patients referred to a DSME program. Clinical data was collected from the patient's referring provider. Thirty-nine patients were enrolled in the IRB-approved study. No significant correlation was found between health status and health literacy. Significant reduction in A1C was seen in all patients; however, follow up health status per A1C negatively correlated with NVS scores. Patients with poor health literacy missed more classes on average than patients with higher health literacy.

The Shadow of Artemisia Gentileschi

Taylor E. Stacy

Laura J. Crary, Ph.D.

Department of Art, Theatre, and Dance

During the late 16th and early 17th centuries, female artists were overlooked due to the stereotypes and expectations placed upon mothers, wives, and women in general during this time. Artists became famous and prosperous due to their connections with influential citizens, but for women had difficulty making these connections. Artemisia Gentileschi was the most prominent female artist in Italy at this time. During survey classes of Art History, students will certainly see Gentileschi's work, but there were other talented female artists at this time. I compare and contrast the style, subject matter, patrons, struggles, and overall public responses to the work of Fede Galizia and Giovanna Garzoni, two artists who lived in the shadow of Artemisia Gentileschi.

The Guatemalan Genocide: Hidden Agendas and Underlying Motives

Dillard W. Stephens

Patrick H. Cosby, Ph.D.

Department of History

This study investigates the intervention and motives of the United States during the Guatemalan genocide in the early 1980s. Previously, historians lacked sufficient sources to conduct a thorough examination of the genocide, and they focused much of their attention to the U.S. sponsored coup of 1954. Using recent declassified C.I.A. documents, this study contributes to the larger debate surrounding the U.S. intervention during the genocide, filling the void of previous historical works. Ultimately, it argues that the United States, while fully aware of the events that were occurring, played a critical and active role in contributing to the atrocities that plagued the Mayan population of Guatemala.

The Human Factor in Euthanasia and Assisted Suicide Decisions

Soo-Jin Sung

J. Justin Brent, Ph.D.

Department of English

Euthanasia and physician-assisted suicide are deeply controversial issues in the modern medical community. The decision to undergo these treatments affects not only the patient but also the physician, the family, and even the outside community, due to legal complications and media interest. This research will explore the moral and ethical arguments against euthanasia and assisted suicide, and also pose and try to answer the question: Are these simply excuses to avoid our reluctance to accept death? With modern medicine striving to preserve life, euthanasia and assisted suicide are seen as a kind of giving up—instead of a medical treatment requested by a suffering patient. The research looks into the psychology of patients who request euthanasia and assisted suicide and the physicians who are faced with the decisions, to further examine the human-prevented decisions of life-terminating treatments.

Naked Expectations

Madeline S. Taghon

Laura J. Crary, Ph.D.

Department of Art, Theatre and Dance

The expectations and boundaries of the nude in art affect both historical works and modern day performance art. History has defined when and where a nude figure is acceptable in art, and how it should be represented and interpreted. These standards changed with time and there were always artists pushing the boundaries. In modern art, many performance artists have used nudes and their own nudity to expand its use and meaning in art. This research will examine the ancient Greeks' representations of the human form, 18th and 19th century Europe use of the nude, and modern performance artists today, particularly Marina Abramovic.

The Singapore Mutiny and its Effects on Nationalism and Home Rule

Richard L. Taylor

Roy B. Campbell, Ph.D.

Department of History

The involvement of Indian troops in WWI struck major controversy for all types of Indians. It was hardly outside of proper for Britain, considering its control of India and lack of consideration for Indian culture to use Indian troops. As a British entity, Indian people had a duty to the Raj. Meaning, they had a responsibility to serve just like any other countrymen. Eventually, British rule was too much to handle and rebellion began in many forms, mutiny being one. How much did mutiny contribute to Indian Independence? Did actions on 15 February 1915 have any control over the development for revolutionary thinking? Many attempts at mutinies were made from different leaders, organizations, and parties to rid India of the British Raj. A considerable number were unsuccessful. That does not rule out that maybe, they were able to develop anti-colonial sentiment into revolutionary speculation. Many studies suggest lots of different answers to the questions above. I think the Singapore Mutiny wasn't a response for Home Rule initially or directly. I suggest that it was a culmination of things that led to the mutiny and its impact as a possible directive for such.

Parental Influence on Political Party Attitudes

Karlee M. Tate

Erin S. McAdams, Ph.D.

Department of Political Science

My research examined whether a correlation exists between parents' political party identification and their young adult offsprings' political party identification. I analyzed data from a survey conducted by Tufts University in which the respondents (between the ages of 18 and 24) answered what their political party identification was and what they believed their parents' political party identification to be. The project also examined differences in this correlation by age, gender, and region of residence. The results indicate that there is a positive correlation between parent political party identification and young adult political party identification. While the overall trend shows that this influence has declined over time, there are a few years where there is a spike in parental influence on young adults. As respondents become older, they seemed to align more with their parents' party affiliation. Females are more likely to have the same party identification as their parents than males, and respondents in the South and Midwest are more likely to have the same party identification as their parents.

The role of Alcohol and Its Influence on Drug Use

Antarius D. Terrell

Robert H. Freymeyer, Ph.D.

Department of Sociology

Alcohol and cigarette use enhances the use of illicit drugs (Griffin, Botvin, Scheier, Nichols 2002). I hypothesized that people who consume alcohol are more likely to support the use of marijuana than people who do not consume alcohol. I use data from the 2004 General Social Survey, which is a nationally representative survey, to test this hypothesis. Previous research suggests that my analysis will show people who consume alcohol will support marijuana use and more so than nondrinkers. If these findings are correct, anti-drug programs might begin by addressing alcohol use.

The Correlation between State Legislative Power and Income Inequality from 1990 to 2011

Stewart M. Thomas

Erin S. McAdams, Ph.D.

Department of Political Science

Since 1990, income inequality has been a growing social problem within the United States. Some recent studies attribute the increase in income inequality to several different factors, including education, family formation practices, economic opportunity, and technological innovation. In contrast, this paper suggests that whichever party has the state legislative power affects the overall level of income inequality within that particular state. Analyzing state-wide data on legislative power and overall level of income inequality (as measured by the Gini Coefficient) since 1990, this paper examines the correlation between the level of income inequality within a state and which political party has state legislative control.

The English Education Act of 1835: The Origin of Indian Nationalism

Mary E. Trimpe

Roy B. Campbell, Ph.D.

Department of History

The purpose of this paper is to review the Education Act of 1835 in India. It takes an in-depth look at the causes for the Act to be put in place and who was involved. This paper's main focus is the repercussions of the education act, which was the rise of Indian nationalism.

Religiosity and its Affect on Opinions of Voluntary Euthanasia

Ryan E. Wasilewski

Robert H. Freymeyer, Ph.D.

Department of Sociology

The end of life is a topic on the minds of many individuals, specifically when there are various choices to make at this stage of life. I examine data from the 2012 General Social Survey, a nationally representative data set, to determine the influence of an individual's religiosity on their likelihood of agreeing with the practice of voluntary euthanasia. I consider both behavioral and attitudinal measures of religious practices and beliefs. Previous research has shown that some religions see practices like voluntary euthanasia as sinful while others see it as acceptable in particular situations. Based on such research, I expect to find that individuals with greater religious involvement will be less likely to approve of voluntary euthanasia.

Real Original: Supreme Court Justice Ideology and Original Intent Interpretation

Brad M. Zebedis

Erin S. McAdams, Ph.D.

Department of Political Science

Previous research has suggested that environmental factors influence Supreme Court justices' decisions on court cases. However, this paper attempts to determine the relationship between a justice's political ideology and constitutional interpretation. Analyzing the majority opinions for milestone court cases, this piece focuses on cases dealing with the First Amendment freedom of religion to determine if there is a relationship between justices' ideology and constitutional interpretation, particularly original intent. The specific language of each opinion is analyzed, and it is expected to show a strong correlation between conservative ideologies and interpretation based off of original intent.

Artist Statement

Jen Marshall

Mark R. Anderson, M.F.A.

Department of Art, Theatre and Dance

I was raised in a very athletic family. There was never much time to relax. We were always on the go from school, to practice, home for homework and dinner, then right to bed. My only time to do art was in high school. As a freshman, I enrolled in a technical school where we had to declare a major. I entered into commercial arts, specializing in graphics—creating posters, designing vinyls, and creating the school yearbook.

I fell in love with acrylic paint; it is smooth, fast drying, and not nearly as messy as oils. As a graphic designer, I struggled with how to turn style of art into paintings. My early work was very clean, organized, straight-edged and colorful.

I attribute the structure in my pieces to my mom, the woman who always had to have the house clean. I was raised to be very organized, not leaving a thing lying anywhere around the house.

Artists I admire include Al Hel, Wassily Kandinsky and Osnat Tzadok. However, my true desire focused on forms of graphic design. As a result, I paid close attention to young artists such as Rik Oostenbroek, Matt W. Moore, and Kenzo Minami.

Several of my pieces feature scenes of confusion and uncertainty. My family moved three times during my childhood, and I seemed to enter a state of confusion with each move.



Paradise



Reverse Psychology



Jen2

Muse

Wipawadee Naiyakhun

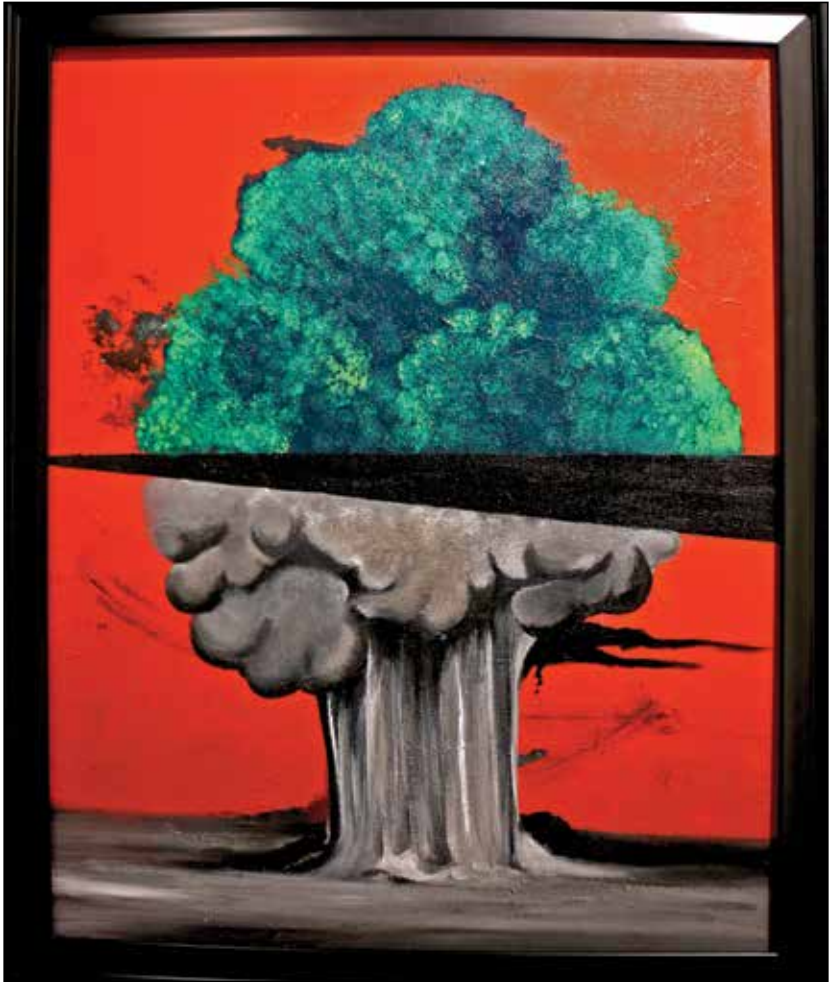
Mark R. Anderson, M.F.A.

Department of Art, Theatre and Dance

Art has always been my escape. Whenever I feel unsure of myself I pick up a piece of paper and a pencil and start to draw. I grew up watching Japanese anime and have always admired and been inspired by its unique forms. My paintings are representations of my inner thoughts when I think about life as an ever-repeating cycle. My paintings express what life means to me. I believe life is an organized chaos. It is something that is not meant to be understood, but to be appreciated. Life is beautiful and it is messy.

I enjoy the texture of acrylic paint as it adds a different dimension which is easier for the expression of emotion. Mass media is a great place for inspiration and ideas. I enjoy employing loose and tight painting together to create the push and pull interaction. My mother and the people around me are my main inspiration for my current collection of work. Most of my paintings were created during a period I've thought of as my lowest point in life. Losing loved ones or feeling unsure of myself and where I am, having the feeling of a never-ending chaos, one that I created in my mind, made me want to make something beautiful yet meaningful for myself. To be able to both recall the hard times and yet remember that one can move past them is to discover something beautiful and reminds me of one of my paintings.

“Super Massive Black Hole” is intended to be the beautiful result emerging from destruction. I want this piece to speak to those who are having a hard time letting go, and look at life events with a new perspective and with hope.



Super Massive Black Hole

Painting the Dream

Joshua Polk

Mark R. Anderson, M.F.A

Department of Art, Theatre and Dance

The current series of artwork explores emotions and issues surrounding conflicts in society, including internal, social, and political conflict that call forth emotional consequences. The development of this series has been related to current events in the broader world and personal opinions. I believe everyone has a voice; how you intend to speak is a foundation for the power of the message. This focuses on the relationship between the size, medium, and color harmony of a work to its intended message. Size is related to the amount of influence the generated subject matter has had in my life. The choice of a given medium is dependent on the intentions related to the intended strength and preferred portrayal of the message. Color harmony is influential to the emotions I want to generate within viewers.

Talking about the past often calls up unpleasant memories and emotions of growing up in a damaged home. However, I often call on many of those same memories and emotions to produce the power and meaning the art I create.

I've studied Charles White Junior, Salvador Dali, and Vincent Fantauzzo whose works captivated me.



Focus



Political Chaos



Holding the weight of the world's tears

Department of Music Honor Recital Students

Laura L. Blanco, Senior, Voice

Elizabeth A. Derrick, Senior, Voice

Joshua R. Harrington, Junior, Organ

Cassidy M. Jarrett, Junior, Percussion

Audrey J. Johnson, Senior, Violin

Gabriela J. Lewis, Sophomore, Violincello

Brenda A. Sease, Senior, Horn

Tianna M. Smith, Junior, Voice

Matthew J. Treaster, Sophomore, Violin

Zachary W. Wells, Senior, Voice



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