Oral Presentation Sessions I – XII

**Session I 9:30 – 10:45**

**9:30 | John Grayson Evans: University of Virginia Neuroscience Undergraduate Program; Department of Anesthesiology**

**Serum Factor Alters T-Type Cav3.2 Channel Gating Kinetics**

Co-author: Slobodan Todorovic, MD, PhD

T-type Calcium channels play a critical role in regulating neuronal excitability. The Cav3.2 channel isoform is highly expressed in peripheral nociceptors as well as in the pain-processing regions of the dorsal horn of the spinal cord, and alterations in Cav3.2 channel activity have been shown to induce hyperexcitability in vitro and hyperalgesia in vivo (Nelson et al. 2005; Jacus et al. 2012 Jagodic et al. 2007, Orestes et al. 2013). Therefore, the Cav3.2 channel has become a legitimate pharmacological target for the treatment of painful neuropathies (Todorovic et al. 2011). Using the patch-clamp technique, we have identified a serum factor that profoundly affects Cav3.2 current magnitude, conductance, voltage-dependence of activation, inactivation, and deactivation in stably transfected human embryonic kidney (HEK-293) cells. Future studies will focus on identifying this serum factor, termed “substance T,” in order to evaluate its potential role in the development of painful neuropathies.

**9:45 | Mark E. Piatkowski: Virginia Tech Department of Biological Systems Engineering**

**Exploring the Life Cycle of Ceratopteris richardii Using Integrative Microscopy**

Co-author: Dr. Karen Renzaglia

Ceratopteris richardii is considered the model species for leptosporangiate ferns and has been used extensively in evolutionary plant biology research. Many plants have retained flagellated sperm cells that require water for fertilization (Renzaglia and Garbary 2001). This study highlights the development of both gametophyte and sporophyte generations with emphasis on fertilization. Both living and preserved specimens were observed using light, differential interference contrast (DIC), fluorescent, and scanning electron microscopy (SEM). Data acquired using fluorescence microscopy suggest the presence of a complex polysaccharide in the spore exine. SEM micrographs presented here support the hypothesis that in the gametophyte, the neck cells of the archegonium split open allowing the flagellated spermatozoid to swim in and fertilize the egg (Lopez-Smith and Renzaglia, 2008). Data gathered in this study propose an integrative microscopic approach to gaining a more complete understanding of land plant evolution and sexual reproduction.

**10:00 | Jonathan Winalski: Virginia Military Institute Department of Biology**

**The Effects of Dantrolene on Nitric Oxide and Aromatase Inhibition in the Embryonic Zebrafish (Danio rerio)**

Nitric oxide (NO) is a gaseous molecule found to be critical in the regulation of cardiomyocyte contraction and vasodilation in the heart. NO is released by the transformation of L-arginine to L-citrulline by NO synthase (NOS), which is found in three isoforms in the human body. The most prominent isoform is neuronal NOS (NOS1) which protects regulation of cardiomyocyte calcium (Ca2+) release through the S-nitrosylation pathway. This occurs through Ryanodine dependent Ca2+ channels. Our results show that 100% of the population of embryonic zebrafish deficient in NOS1 experienced a phenotypical response of cardiac arrhythmias. However, all arrhythmic behavior was able to be rescued through the use of dantrolene treatments, which block Ca2+ release in cardiomyocyte Ryanodine channels. These results help establish a model for the understanding and treatment of arrhythmic behaviors in the heart.

**10:15 | Nicholas Wright: Roanoke College Department of Chemistry**

**Structural Characterization of M. tuberculosis DNA Gyrase**

Co-authors: Devin Borg, Dr. Ron Raab

Recent World Health Organization studies have shown that one-third of the global population are carriers of latent or active Mycobacterium tuberculosis (TB) infection. With the emergence of antibiotic resistant TB, it is crucial to explore new drug targets and methods of treatment against the respiratory infection. One method of treatment is a class of antibiotics called fluoroquinolones. These drugs rely on a mechanism of action that inactivates DNA gyrase, a protein vital to cell function and replication. The goal of this project is to characterize binding interactions between the GyrA and GyrB subunits of M. tuberculosis DNA gyrase. Molecular cloning, site-directed mutagenesis, functional and structural assays have been utilized to investigate two specific sites of potential interaction. Initial results suggest that the GyrB K658 residue is important for complex formation, as well as a possible interaction occurring between the GyrA R26 residue and the GyrB residues D684 and E685.
10:30 | Vania Murcia: Virginia Military Institute Department of Biology
Effects of Nitric Oxide on the Neuromuscular System of Embryonic Zebrafish

The nervous system is dedicated to communication within the body, for example, how the neuromuscular junction (NMJ) can control movements. The main neurotransmitter in the NMJ is acetylcholine (ACh), whose release is thought to be modified by nitric oxide (NO). NO, a free radical present as a diffusible gas and acting as a signaling molecule, created by the enzymatic activity of NO synthase (NOS) acting on the L-arginine substrate. Reports found that under varying conditions, NO can either inhibit or stimulate ACh release from the NMJ. Therefore my hypothesis is that NO deprivation in developing zebrafish disconnects a vital process in the NMJ, possibly through the NO/sGC/cGMP dependent pathway through the blockage of the pre-synaptic n-Ca2+ channels. This action would prevent ACh neurotransmitter release from synaptic vesicles, blocking muscular activity that leads to the ‘listless’ condition. Current data from my research begins to substantiate this hypothesis.

Session II: 9:30 – 10:30

9:30 | Savanna Klein: Sweet Briar College Department of Biology; Department of Creative Writing
Into the Gaps: Combining Biology and Creative Writing Through Sweet Briar College's Nature Sanctuaries

Sweet Briar College is home to Constitution Oaks Nature Sanctuary, a mature white oak forest that has been considered the best in the Piedmont. Serene, lush, and longstanding, it is the perfect place for inspiration and research. Within this forest is a permanent research plot where each tree has been identified, measured, plotted on a map, and assessed for health. This process is repeated every decade and is part of a long-term project studying mature forest dynamics. I collected data on the forest this summer, interested in learning about current forest health, changes in the tree community, prevalence of invasive species, whether the classification of “old growth” was appropriate, and also creating a collection of creative works based on my experiences.

9:45 | Eric Fagan: Roanoke College Department of History
G. Stanley Hall, Juvenile Fiction, Health Manuals, and the Construction of Adolescence in the Progressive Era

In 1904 G. Stanley Hall published his work, Adolescence, establishing a new developmental category for children. This project focuses on how adolescence was constructed in juvenile fiction and health manuals within the years 1910 and 1915. In my analysis I placed health manuals and novels within the context of Hall’s work, reading them within the debate about this emerging stage of life. My research answered the question: Did the theories of Hall affect the image of ideal adolescent behavior offered to young people through various types of literature?

10:00 | Steven Trayer: Virginia Military Institute Department of Psychology
Examining the Effects of Writing About Past Positive Experiences on Psychological Well-Being

Co-author: Scott Frein, PhD

As a variation of Burton and King’s (2004) intensely positive experiences study and Pennebaker and Beall’s(1986) expressive writing paradigm, 48 participants from Amazon’s Mechanical Turk wrote about either a positive past memory or a neutral past memory for 20 minutes. Stress and mood measures were taken before and after each writing task. Writing about past positive memories improved affect scores significantly more than writing about neutral memories. The results suggest that writing about positive past memories provide benefits similar to those found using present and future oriented writing interventions in the expressive writing field. However, it should be noted that the current study only reports data for one day of writing, while the Burton and King and Pennebaker and Beall studies had participants engage in three days of writing. Reasons for this change in design will be discussed.

10:15 | Diep "Penny" Trieu: Randolph College Department of Psychology
Social Networking Sites’ Usage and Levels of Narcissism

This presentation will review the existing literature on narcissism and social network sites, proposing directions for an experimental research. Narcissistic tendencies result in dysfunctional interpersonal relationships due to the narcissists’ exploitativeness, entitlement, and constant need for admiration. Studies also pointed out that narcissism can be state-dependent, varying between contexts. Precisely, when the context stresses feelings of community and interdependence, levels of narcissism and narcissistic aggression decreased. Social network sites (SNS) can go either way of emphasizing individualism or enhancing connection to other people. On the individualistic side, SNSs provide a malleable and wide-reaching platform for broadcasting idealized versions of the self. Levels of narcissism predict certain exhibitionistic SNS activities such as frequency of self-portraits posting, number of friends, and self-promotion. However, SNS usage may increase social capital and strengthen existing social ties. Social network sites may work both ways to increase/decrease narcissism, depending on users’ approaches to the sites.

Session III: 9:30 – 10:30

9:30 | Sheila Martin: George Mason University Department of African & African American Studies
Ain’t No Sissies Here: Examining the Black Community's Suppression of Human Sexuality

The African-American community has battled stigmas associated with sexuality, inferiority and race since the arrival of the
Europeans to the coast of Africa in the 15th century. Once used to justify enslavement, the perceived sexual lewdness of African-Americans has repeatedly been used to validate inferiority, oppression and injustice throughout American history. This paper examines how this inferiority based on race and sexuality has prevented healthy, open dialogue on human sexuality, in particular male homosexuality, within the African-American community. In this paper, I address the effects this suppressive silence on homosexuality has had on progress and healing. Presented in a three-point argument, this paper depicts how the historic linkage of blackness to bestiality, hypermasculinity within African-American culture and the role of the Black Church have fostered a culture that silences and rejects homosexuality; in effect, these factors have culminated in a lack of education, harmony and growth within the African-American community.

9:45 | J.D. Brady: James Madison University Department of History
Anti-Transgender Oppression and Discrimination within the Gay Liberation Movement, 1965-1975
Lesbian, gay, bisexual, transgender, and queer people have contributed greatly to American society. They have also experienced tremendous amounts of oppression and discrimination. Though some historians have produced scholarship illustrating the adversity faced by LGBTQ people throughout U.S. history, few works specifically highlight transgender people’s experiences. This paper examines how anti-transgender oppression and discrimination occurred within the gay liberation movement of the late 1960s and early 1970s. While fighting for equality, inclusion, and justice, gay liberation activists excluded transgender rights goals from their agendas and transgender people from participation in political and social activities. Some gay liberationists believed separating themselves from transgender people would help secure themselves a positive public image. Others used feminist arguments to justify their actions. Though the gay liberation movement had inclusive aims, its nature was not so inclusive.

10:00 | Marta Saul: Sweet Briar College Department of Psychology
Sexually Submissive Feminists in the Wake of the Sex Wars
The present research addresses the potential impact of the Feminist Sex Wars on modern perceptions of acceptable and unacceptable feminist behavior. Drawing on Goffman’s dramaturgical model of social interaction and Festinger’s cognitive dissonance theory, the study assesses how anti-feminist- and sexually submissive-identified women to differing feminist perspectives on sexual submissiveness, such as those still present in the wake of the Sex Wars. Participants read passages from one of two feminist points of view (approving or disapproving of sexual submissiveness), then rated their agreement or disagreement with the statement that sexual submissiveness is anti-feminist. In a third control condition, participants read no passages. As determined through hierarchical multiple regression, participants in the control condition acknowledged more conflict than those who read statements espousing the conflict prior to responding. This finding seems to indicate that the latter participants’ responding was influenced by both self-presentational concerns and dissonance reduction mechanisms.

10:15 | Tiffany Nelson: James Madison University Department of History
A Movement on the Verge: The Spark of Stonewall
The presentation is concentrated on the Stonewall Riots and the movement that was furthered by the riots. A narrative of the riots is given as well as a description of the formation of the modern gay and lesbian liberation movement in the United States. Focused in the 1960’s-1980’s time period, the presentation gives an overview of the formation of organizations devoted to the LGBT community and gay rights, in addition to marches that took place to raise awareness. Briefly mentioned is the outbreak of HIV/AIDS in the gay community and how the outbreak contributed to growing gay pride. The presentation attempts to address the transformation from the Stonewall riots in Greenwich Village to a nationwide gay pride revolution.

Session IV 9:30 – 10:30

9:30 | Derek Litvak: Virginia Tech Department of History
Falling Sacrifice to Despotism: Virginians Respond to the Intolerable Acts of 1774
My project aimed to shed more light on how Virginians responded to the Intolerable Acts of 1774, which were mostly aimed towards Boston and Massachusetts. While 1774 wasn’t a year that independence was declared or shots were fired, it marks an important time of colonial unity. The backbone of my project was county and town resolutions passed during the summer of 1774 in response to these acts. These resolutions allow a view into what many Virginians were thinking during this time, and the evolution of their sentiments. Through these resolutions, and other documents of the time, I was able to construct a portrait of the colonial Virginia mindset towards these acts, and how Virginians would eventually affected the overall colonial response. My results showed that these acts worked, inadvertently, towards unifying colonists more than ever against British policy. Their responses during this year are critical in understanding the American Revolution.

9:45 | Charles Brooks: Randolph-Macon College Department of History
The Effect of Indian Geopolitics on Virginia Politics, 1763-1788
This paper assesses the effect of Trans-Appalachian Indian geopolitics on Virginia politics from 1763 to 1788. It examines how Indians on the frontier influenced Virginia’s decision to declare independence in 1776 and to ratify the Constitution in 1788. The analysis begins with how Cherokee-led actions spurred imperial policies that riled up Americans, such as the
The morale and will of an England did not break, but in fact was solidified behind this shared experience. Through his diaries, journals, newspapers, and government documents, the author argues that this German offensive had an adverse effect. The failures of politics during the 19th century lent a hand in driving the entire American Union into an all out civil war lasting four long bloody years. The Civil War was the result of years of sectional tensions between Northerners and Southerners regarding states rights, and most importantly the complex issue of slavery. Before America’s deadliest war, emotions reached their breaking point along the Kansas-Missouri border between 1854-1861, where the failures of Popular Sovereignty in the Kansas-Nebraska Act, turned into all out political violence. Beginning in Kansas, passions boiled all over eventually making their way back east, sending the country into a total state of war beginning April 9, 1861, with the famous first shots fired at Fort Sumter.

Session V 9:30 – 10:30
9:30 | Andrew McLaughlin and Jacob Seymour: Virginia Military Institute Department of History
The Rise of Syrian Nationalism Until 1925
The French actions and colonial policy towards their Syrian mandate at the end of World War I, in 1924 initiated a Syrian nationalist movement which surpassed the sectarian divides of the Syrian peoples (Christian, Jews, Shia, and Sunni, among others). These peoples before were subjects of the Ottoman Empire in a region known as Greater Syria in which the French mandate haphazardly carved out Syria. This accumulated and ultimately resulted in the Syrian revolt of 1925. Historically colonial powers were able to recruit security forces within the colony they controlled, however, during the revolt the French were unable to effectively recruit forces within the region. The intent of these revolutionaries was to create an autonomous Syrian state. Though revolutionary attempts were in vain, the concept of a Syrian state was solidified. Our project will concentrate on the rise of Syrian nationalism until the Syrian revolt in 1925.

9:45 | Hayley Moore: James Madison University Department of History
Bletchley Park: World War II’s Best Kept Secret
One of World War II’s best kept secrets was the code breaking organization stationed at Bletchley Park. This top secret intelligence operation with the help of recruited civilians known as code breakers cracked German intelligence information on an Enigma machine that had been stolen and decrypted several years before the start of the war. Code-named Ultra, the operation helped the Allies forces intercept key German messages, allowing them to be being one step ahead of German forces missions. With the help of Bletchley, not only the deaths of many Europeans were prevented, but the operation ultimately became a key part in ending the war.

10:00 | Kyle Patrick Rothemich: James Madison University Department of History
The Morale of a Nation: The Blitz in England, 1940-1941
When bombs began to drop on England in the fall of 1940, the German air offensive began. Houses, public institutions and families were ruined by this coordinated effort to destroy the English will to fight a war. Through the use of contemporary diaries, journals, newspapers, and government documents, the author argues that this German offensive had an adverse effect. The morale and will of an England did not break, but in fact was solidified behind this shared experience. Through his examination of these documents, the author also puts the Blitz within the geopolitics of the time. By revealing these sentiments, he concludes that writing acted as a tool to cope with the destruction taking place at this time.
which in turn allowed for a greater chance of survival. An organized and an enforced judicial process, which helped ensure some semblance of social order, and enabled the prisoners to control crime in the camp, a society that arose in the camp. This society involved a social structure, which included businesses, jobs, and a free economy. The Andersonville Prison opened in April 1864, originally built to serve as a holding house for Union prisoners of war waiting to be sent back to the north in exchange for Confederate prisoners. It quickly turned into one of the most deadly prisons of the Civil War due to overcrowding and a failing Confederate Nation. Using primary sources including prisoner diaries and journals, this paper pieces together the lives of the prisoners in the camp in order to examine the functioning society that arose in the camp. This society involved a social structure, which included businesses, jobs, and an organized judicial process, which helped ensure some semblance of social order, and enabled the prisoners to control crime in the camp, which in turn allowed for a greater chance of survival.

Session VI  11:00 – 11:45

11:00 | Huong "Hailey" Nguyen: Randolph College Department of Environmental Studies  
A Movement Towards Fiscally, Socially, and Environmentally Sustainable Food on Campus
Among the goals of the Randolph College Sustainability Plan is to implement sustainable practices in dining services. Research conducted previously by students and faculty has indicated that our students want food on campus that is affordable, healthy, delicious, and provided in a flexible, just, and environmentally-conscious manner. This summer, we investigated socially, environmentally, and financially sound dining service concepts and strategies. We considered programs that had been successfully implemented at other institutions, and explored opportunities offered by our organic garden, our current dining services, and alternative providers. Our research successfully provided specific and comprehensive recommendations for the College’s Dining Services in both short-term and long-term. We hope that our proposed model would be workable for other small liberal arts colleges as well.

11:15 | Ashley Baker: Sweet Briar College Honors Program  
An Introduction to Green and Sustainable Chemistry
The global chemistry community - academia, industry, research - faces a crisis if it does not alter its practices to be more sustainable. With limited resources, rising pollution, and growing population we must not only be aware of necessary changes but have the knowledge and tools with which to act on them. This presentation covers the definition of green chemistry, its relevance to everyday living, and successful examples of sustainable innovation.

11:30 | Amy Kvien: Sweet Briar College Department of Economics  
Modeling the Potential Implications of Basel III
This presentation focuses on Basel III, an international banking regulation to be fully implemented by 2019. We are attempting to understand how this regulation will work in reality, including unforeseen complications. This research is background work for a large model designed to predict Basel III's effects in the U.S. economy.

Session VII  11:00 – 12:15

11:00 | Jacqueline Pirrung: James Madison University Department of History  
Murder and Mayhem: An Analysis of the Sacco-Vanzetti Case
On April 15, 1920, in South Braintree, Massachusetts, a paymaster and his guard were robbed of nearly $16,000 and shot dead by two strangers. Just a few weeks later, Italian immigrants, Nicola Sacco and Bartolomeo Vanzetti, were arrested, tried, and found guilty. Their trial was surrounded by an era of massive immigration and American patriotism and xenophobia. Unfortunately, this sparked a large amount of resentment in America and, eventually, plagued the case against Sacco and Vanzetti. This essay examined the crime, trial transcript, and evidence used against Sacco and Vanzetti in order to determine if the men were executed for a crime they did not commit. After careful analysis, the lack of evidence and unreliable testimonies concluded that Sacco and Vanzetti were wrongly convicted for the crime. Instead, they were found guilty and executed for being alien anarchists.

11:15 | Amanda Parmiter: Virginia Tech Department of History  
The Creation of a Functioning Society in the Andersonville Prison
The Andersonville Prison opened in April 1864, originally built to serve as a holding house for Union prisoners of war waiting to be sent back to the north in exchange for Confederate prisoners. It quickly turned into one of the most deadly prisons of the Civil War due to overcrowding and a failing Confederate Nation. Using primary sources including prisoner diaries and journals, this paper pieces together the lives of the prisoners in the camp in order to examine the functioning society that arose in the camp. This society involved a social structure, which included businesses, jobs, and an organized judicial process, which helped ensure some semblance of social order, and enabled the prisoners to control crime in the camp, which in turn allowed for a greater chance of survival.
**Session VIII 11:00 – 12:00**

11:00 | Kiera Cavalleri: Sweet Briar College Departments of Engineering Science and Religion

**Water Treatment in Context: Resources and African Religion**

Drinking water availability is a crucial problem in the developing world that must be addressed in order to improve the quality of life of individuals living within such countries. In order to best approach this problem, two aspects must be addressed: appropriate methods of filtering water and religiously determined social norms that must be observed to best design these methods. This research explores concrete filtration methods as a successful means to remove fecal coliforms from surface water supplies. Then, through a religious lens, it analyzes conceptions of nature and the role of women within African Tradition Religions since those factors are inextricably linked to the success of treatment methods.
by the propagation rules. The goal of the game is to touch the opponent’s pad with a cell of your own color. These pads are separated by hundreds of cells. The players can change the colors of these pads at any time. These are the only cells that the player has control over. The other cells, however, evolve at fixed intervals. The players’ controls 10 by 1 thousand units long by one thousand units wide by one hundred units high with two players, one red player and one blue. The cells are in one of five states: red solid, red fluid, neutral, blue solid or blue fluid. The fluid and solid are stability states of the cell. Initially each cell is in neutral state. New generations evolve at fixed intervals. The players’ controls 10 by 10 square cells on opposite side of the grid, called pads. These pads are separated by hundreds of cells. The players can change the colors of these pads at any time. These are the only cells that the player has control over. The other cells, however, evolve by the propagation rules. The goal of the game is to touch the opponent’s pad with a cell of your own color.
We continue a study on the influence of hands-on and inquiry instruction (as opposed to traditional lecture and direct instruction) on student achievement and teacher/student attitudes toward science, with the goal of increasing interest in studying science, increasing confidence in communicating science ideas, and increasing student achievement in science and mathematics. We continue creating resources including lesson plans, associated content, and video for hands-on and inquiry-based lessons in the K-8 classroom, and post resources at the project website, trst.randolphcollege.edu. We held our annual Science Institute for 65 local teachers in June. This professional development opportunity is designed to help teachers implement problem based lessons in the science and mathematics classroom. Data collection includes surveys, student performance measures (SOL end-of-course test scores, science and math grades), and classroom observations. The results of our research show that teachers use more technology after attending the Institute and implement more hands-on activities.

**Helter Skelter: A Sociological Analysis of Cults in American Society**

**Science and Math Links: Research-Based Teaching Institute**

We continue a study on the influence of hands-on and inquiry instruction (as opposed to traditional lecture and direct instruction) on student achievement and teacher/student attitudes toward science, with the goal of increasing interest in studying science, increasing confidence in communicating science ideas, and increasing student achievement in science and mathematics. We continue creating resources including lesson plans, associated content, and video for hands-on and inquiry-based lessons in the K-8 classroom, and post resources at the project website, trst.randolphcollege.edu. We held our annual Science Institute for 65 local teachers in June. This professional development opportunity is designed to help teachers implement problem based lessons in the science and mathematics classroom. Data collection includes surveys, student performance measures (SOL end-of-course test scores, science and math grades), and classroom observations. The results of our research show that teachers use more technology after attending the Institute and implement more hands-on activities.

**Music and Creativity**

Many have studied the effect of music on creativity, but, thus far, there have been no empirical investigations into the influence of music on creativity in relation to empathy. The purpose of this study was to investigate which genre was more conducive to creativity and if empathy plays a part. Forty-four participants from a southern liberal arts university were exposed to three music genres (classical, pop, and post-hardcore) and after each genre, were asked to generate as many uses for the given household item (brick, pencil, cardboard, paper), and then given an empathy posttest. An ANOVA was run to determine the fluidity of responses given for each genre. Results indicated that there was a significant difference between genres of music in fluidity and in the effect music plays on the empathetic person. This can be attributed to differences in empathy levels when each genre was played.

**Keywords:** Creativity, music, empathy.

**Suicide Risk Factors and Psychopathic Personality Traits in a Sample of Disability Claimants**

**OBJECTIVE:** This study investigated the relationship between psychopathy and suicidal behavior in a sample of disability claimants. METHOD: 177 disability evaluation reports, dated from December 2009 to May 2014, were reviewed. Content analysis yielded scores on: 1) the Hare Psychopathy Checklist-Revised (PCL-R); 2) the Jobes Suicide Status Form-III (SSF-III); 3) Historical and clinical factors. RESULTS: 81.5% of the sample reported suicidal behavior. 20.5% demonstrated moderately severe psychopathic traits (PCL-R score ≥ 20). 77% of the disability claimants who demonstrated moderately severe psychopathic traits reported suicidal behavior, compared to 78% of the non-psychopathic sample (PCL-R score ≤ 19). Contrary to expectation, 33% of the moderately severe psychopathic sample reported multiple suicide attempts, compared to 16% of the non-psychopathic sample (p = .003). CONCLUSION: The findings in this study contradict Cleckley’s (1941) hypothesis that suicide is “rarely carried out” by psychopaths, and suggests that psychopathy is not a protective factor against suicide.

**The Factors that Encourage and Motivate Students at Randolph College to Participate in Volunteerism**

This project explores the factors that encourage and/or motivate students at Randolph College to volunteer. A review of academic literature on volunteerism shows that there has been a decline in the amount of research about volunteering since the 1990s. Additionally, there is a lack of literature about volunteering among college students, particularly at small private liberal arts colleges. Qualitative and quantitative methods were used to get an in-depth understanding of what RC students are doing (or not doing) in terms of volunteerism as well as answer the questions “what do they think and feel about volunteering?”, “why are they doing it or not doing it?”, and “how can we increase the amount of volunteerism among RC students?” By examining the data, results show that students at RC volunteer because they feel obligated, it makes them “feel good”, “it’s the right thing to do”, and “it’s a way of life”.

**The Nature and the Resulting Anomie Experienced by Society’s Outcasts, Respectively, and the Role of Subcultures in American Society**

Classical sociologists Max Weber’s and Emile Durkheim’s exhaustive research on Western mainstream society’s repressive nature and the resulting anomie experienced by society’s outcasts, respectively, is imperative in understanding the rise of subcultures within the overarching system of America. Subcultures that were examined within this research project include both communes and cults, particularly in regard to Charles Manson and the Manson Family. Weber’s theory of charismatic authority was essential in analyzing Manson’s uncharacteristic ability to lead and manipulate his devotees into committing unprovoked mass murder. As a charismatic leader, Manson employed coercive mental manipulation, dehumanization techniques, and drug-induced altered consciousness over his devotees in order to gain control over them. From a sociological...
standpoint, Charles Manson and the Manson Family, along with their savage acts, can be understood as an extreme deviation from mainstream American culture of the 1960s.

Session XI  2:00 – 3:00

2:00 | Raymond Hyser: University of Virginia Department of History
Metis vs. Andreia: Generalship in the Peloponnesian War
This paper focuses on the nature of generalship during the Peloponnesian War. Exploring the Homeric values of metis and andreia, the paper reflects on the influences of Homer's heroes, and the traits these famous Greek heroes held. Drawing from these Homeric values and heroes, the successful Greek generals of the Peloponnesian War fought to find a balance of military strategy, and maintaining the respect of their troops.

2:15 | Lydia Ethridge: Sweet Briar College Department of History
The Beloved Body of the King: The Politics of Louis XV's Sacred Body
The songs and poems written in response to two periods of illness in the reign of Louis XV (1715-1774) show a significant change in public perception of kingship that occurred in the 18th century, at least in part as a result of Louis XV’s illicit sexuality. An examination of literature in verse from the period reveals that while the responses to his childhood illness reflect hope for his future potential as a ruler, the responses to his later illness express elation over a perceived religious transformation in the king. This talk will attempt to explain the possible reasons for this change and the effects this change had on the institution of monarchy in the final years of the Ancien Régime.

2:30 | Cynthia Woodring: Mary Baldwin College Department of English
Introspection and Retrospection – Wyatt and Surrey in Exile
In the Medieval Period, the poetic expression of exile is depicted by an extremely uncomfortable solitude amidst threatening seas and an uncertain relationship with the “Maker.” In contrast, the Renaissance poet in exile is trapped both inside and outside of human constructs and culture: imprisoned in the Tower, or banished to a remote castle or country estate. Sir Thomas Wyatt (1503-42) and Henry Howard, the Earl of Surrey (1517-47) both met such fates. Wyatt’s “Mine own John Poins” and Surrey’s “So cruel prison how could betide” were composed during periods of imprisonment, and a comparison of the two poems can offer insight into the manner in which Renaissance authors met this new form of banishment. Examination of how each poet approached the subject of exile in verse reveals Wyatt’s preference for introspection and Surrey’s for retrospection.

2:45 | Natalie Tsottles: Loyola University Maryland Department of Philosophy
Hope, Faith, and Love in the Thought of Peter Gracilis
I have examined a section of a Medieval Latin manuscript containing the work of a philosopher and theologian named Peter Gracilis (died 1393). Peter Gracilis wrote his commentary on Peter Lombard’s Sentences in the academic year of 1375/76. My project focuses on a manuscript folio containing a commentary of Book III of the Sentences. The central question of this section of the text is about the nature of the theological virtues, asking, “whether hope, faith, and love, which are required for final salvation, are really distinct from gifts of the Holy Spirit and from one another.” My project includes an original transcription of the text, an edited version of this, as well as a commentary that focuses on the three primary conclusions made in the text.

Session XII  2:00 – 2:45

2:00 | Claire R. Williams: James Madison University Department of History
More than a Housewife: Revolutionary Era Women in War
This paper discusses the contributions of eighteenth century Patriot women during the Revolutionary War, both on the home front and the lines of battle, as they arose from a growing revolutionary consciousness. The argument states that these women not only provided a necessary force for the Continental army, but also fought for social and political reform as recognition of their efforts. Their achievements marked the beginning of a women’s movement, as women’s secondary roles were acknowledged though later dismissed. Perspectives of both sexes are used to maintain the reasoning for early nineteenth century outcomes. Beginning with pre-revolutionary ideology and changing opinions, the paper then continues by outlining the motives and efforts of famous and anonymous females throughout the war, ending with post-war results.

2:15 | Shannon Huger: Randolph-Macon College Department of Art History
"Discipline and Punish": Controlling Female Sexuality Through Painting in Nineteenth Century England
In Victorian England, perceptions of womanhood were based on the moral guidelines of Protestantism and the scientific revolution, which brought attention to the biological differences of the sexes. With this understanding, the patriarchy developed the basis for creating gender boundaries, identifying women as the pinnacle of virtue and morality. Although Michel Foucault did not publish Discipline and Punish: The Birth of the Prison until 1975, his theories of social control are compelling for the analysis of art that emerged in response to these socio-cultural changes. Foucault’s analysis of “systems of punishment” can be applied to art used to define social propriety in order “to repress to prevent, to exclude, to eliminate”
those who transgress. Through this theoretical framework, I argue that by using the female “docile” body as emblematic of Victorian propriety, British painters attempted to restrain feminine sexuality and to reinforce the middle class social attitudes.

2:30 | Morgan Sykes: Virginia Tech Department of History
Separate is Not Equal: The Successful Integration of African American Women into VPI During the mid 1960s
This presentation examines the struggle of the first generation of African American women to break the double barrier of race and gender in order to be able to attend public universities, by investigating the first generation of African American women at Virginia Tech’s undergraduate program. These six women did not allow racism and sexism to prevent them from successfully integrating into VPI. They enrolled in 1966 and not only did they later graduate, they also excelled academically and socially. With excerpts from interviews, scrapbooks and other primary sources I attempt to portray what life was like for these women and incorporate information about their lasting effect on the university. While their success was remarkable, Virginia Tech’s present day diversity leaves much to be desired. Sharing this knowledge can hopefully further decrease the discrimination of race and gender and continue to encourage full integration at all public universities.

Poster Session

1. Wendy Ferguson, Hayley Foraker, Verena Joerger and Patricia Morgan: Sweet Briar College Department of Environmental Science
Establishment of Biofuel Grasses at Sweet Briar College: Measuring Initial Success
As the concentrations of greenhouse gases continues to increase, the need for renewable, low-carbon energy sources is growing. Biofuels address this need by producing energy in a carbon neutral way, meaning that the carbon dioxide that is released during combustion is sequestered by biomass the following growing season. In contrast, fossil fuels release large amounts of carbon to the atmosphere that otherwise would have stayed in the ground. In the spring of 2014, in partnership with FDC Enterprises, Sweet Briar College (SBC) converted 200 acres of hay fields to warm-season perennial grasses for the production of biofuels. Six months after planting, variability in establishment success is apparent across fields. Here, we investigate measures of planting success (e.g. aboveground biomass, plant density) as functions of field topography, soil characteristics, and weed pressure. We anticipate these measurements could provide baseline data for evaluating the long-term potential for growing biofuels at SBC.

2. Verena Joerger: Sweet Briar College Department of Environmental Science
Environmental Controls on New Particle Formation in the Blue Ridge Mountains of Virginia
Co-author: Dr. Tom O'Halloran
We present initial results investigating the environmental controls on new particle formation events at a research site in central Virginia. The Sweet Briar College Land-Atmosphere Research Station features a 37-meter tower within a loblolly pine plantation, at the eastern edge of the Blue Ridge Mountains. The tower supports meteorological instruments at three different heights (2, 26, and 37 meters) and two air sampling inlets located above the canopy. The inlets draw air samples into a climate-controlled shed where precursor gas concentrations (ozone, sulfur dioxide, and nitrogen oxides) are determined by gas analyzers, and a Scanning Mobility Particle Sizer measures aerosol size distributions every 3 minutes. For this study, aerosol size distributions from August through September 2014 were analyzed along with HYSPLIT backwards trajectories, meteorological measurements, gas concentrations, and the condensational sink. These datasets will contribute to a better understanding of the causes of aerosol formation in the southeastern United States.

3. Brianne Conrad and Ryan Mahon: Randolph College Department of Environmental Studies
The Effect of Biofilm on Sediment Erosion in Coastal Lagoons
Sediment movement in coastal lagoons affects nutrient flux and seagrass growth. Previous research has shown that sediment erodibility is affected by biofilm concentration; however, research has not used lab cultured biofilm to examine the relationship between the two. We manipulated nutrient levels in the water column to determine the effects on biofilm growth. Erosion tests were conducted to determine the relationship between sediment erodibility and biofilm concentration. Results show that carbohydrate levels are unrelated to chlorophyll concentrations and erodibility. The ammonia and nitrate concentrations (nutrient levels) changed when temperature in the bins changed. The nutrient levels did not predictably affect the chlorophyll levels. Controls on biofilm growth are still unclear and the assumed relationship between carbohydrates and erodibility may be invalid.

4. Sang Yun Kim: Bridgewater College Department of Physics
Invariant Amplitudes for Scalar and Pseudo-Scalar Decays to Three Z Bosons
Co-authors: Howard E. Haber, Deva O’Neil
The motivation for this project is to show that one can experimentally distinguish between parity-even and parity-odd scalars. We calculated the decay rate for the general three body decay, and we analyzed the independent invariant amplitudes for the CP-even scalar decay to 3 Z bosons. We reduced matrix element to minimal number of form factors and calculated helicity amplitudes. We showed that they reduce to the six independent amplitudes. We have also explicitly calculated the matrix element for the tree-level process and showed that it is consistent with the form found in the general case. Finally, helicity amplitudes were explicitly calculated for the tree-level case, and we verified that they respect Bose symmetry and reduce to 6 independent amplitudes, as expected. Since we now know the minimal form of the matrix element for p-even scalar, we hope to extend our work for calculating the decay of parity-odd scalar.

5.
Trevor Bond: James Madison University Department of Engineering
Electric Motorcycle Road Load Modeling
Co-authors: Will Hays, Zach Nagourney
As electric motorcycles begin to enter the commercial market, the need for accurate road load modeling to predict energy usage and range becomes increasingly apparent. Our work aimed to improve upon an initial road load model that was developed for the Moto-Electra endurance racer which was driven cross-country in June of 2013. The initial model made the simplifying assumption that air density (a factor in determining drag force) was constant throughout the trip. Using both the Shelquest Engineering method and a modified IOP 1991 method the air density is now calculated continuously throughout the trip based on archival data from weather stations located near the route. To check the accuracy of the results the predicted energy usage based on the road load model that incorporates archived weather data is compared to the actual energy use as determined from continuous measurement of battery pack voltage and current during the trip.

6.
Jake Norris: Roanoke College Department of Chemistry
Determining the Significance of the InhA "Substrate-Binding Loop" in the Construction of Mycolic Acids
Mycobacterium tuberculosis, the causative agent of human tuberculosis, perseveres as a major cause of death throughout the world. Mycolic acids, which are lengthy molecules characteristic to the genus Mycobacteria, contribute to the survivability of these prokaryotic organisms. The appearance of multi-drug resistant tuberculosis has renewed interest on locating new antimicrobial targets within this bacterium. The first line treatment, isoniazid (INH), targets the InhA protein, which is necessary for the biosynthesis of mycolic acids. This project focuses on the portion of the InhA protein that binds mycolic acids and its subsequent mutation using sequences from the analogous protein in E. coli, FabI. To date, both Fab-I and InhA proteins have been cloned and expressed with subsequent purification. Kinetic analysis as well as the “substrate-binding loop” exchange are currently in progress.

7.
Mwazomela Mbewe: Mary Baldwin College Department of Chemistry
UV and UV/H2O2 Photolysis of Bisphenol-S
Bisphenol-S (BPS) is an endocrine disrupting compound (EDC) used as a substitute for Bisphenol-A (BPA), an EDC used in plastics and thermal receipts linked to health issues like infertility, cancer, and diabetes. Like many high production volume chemicals produced for the consumer market, many are discharged into waterways. This project focused on the removal of BPS from water. Using laboratory grade water as a standard, 5 mg/L BPS solution were made with treated wastewater and exposed to UV light and varying concentrations of hydrogen peroxide (H2O2) for 90 minutes in a UV reaction chamber. A proportional relationship between concentration of H2O2 and percent destruction was observed with up to 96% removal. In laboratory grade water, we saw a similar trend, but the least amount of H2O2 was the most effective. Further research would help us understand the irregularity and determine if wastewater shares this disposition and expectantly cut treatment costs.

8.
James Lau: Hampden-Sydney College Department of Chemistry
Analysis and Comparison of Diesel Fuel for Organic and Metal Content via MP-AES and GC-MS
Tests reveal that a heating oil furnace modified with a ProGreen Labs LLC. pre-combustion apparatus device is 60-70% more fuel efficient than the conventional heating oil furnace. This fuel efficiency can either be attributed to a manipulation of fuel pressure or by chemical alterations of the ignitable liquid as it travels through the device. The experiments of this paper endeavor to explore the latter. Five diesel fuel samples that have each gone through a different adjustment of the apparatus were collected and tested via a microwave plasma atomic emission spectrometer (MP-AES) and a gas chromatography-mass spectrometer (GC-MS). A diesel fuel sample that did not go through the device served as a control. Results show both samples and control are chemically identical, which means the apparatus did not likely alter the chemical composition of fuel as part of the observed efficiency increases. Therefore, the device is primarily efficient through pressure manipulation.
9. Emily Diamond: Sweet Briar College Department of Biology
Characterizing Promoter Activity of an O-Antigen Chain Length Regulator in Mucoid and Non-Mucoid Pseudomonas aeruginosa
Co-authors: Erica Kintz(2), Joanna B. Goldberg(3) and Michael R. Davis Jr.(1)
(1)Department of Biology, Sweet Briar College; (2)The Centre for Immunology and Infection, University of York;
(3)Division of Pulmonology, Allergy/Immunology, Cystic Fibrosis and Sleep, Emory University School of Medicine
Pseudomonas aeruginosa infects the lungs of patients with cystic fibrosis (CF). Two important virulence polysaccharides of
this bacterium are the O-antigens of lipopolysaccharide (LPS) and alginate. As the infection progresses to a chronic state in
the CF lung, the O-antigen portion is shorter and alginate is overexpressed. We have previously shown that Wzz2 is a
protein that controls the expression of very long O-antigen chain length. Using Western blot analyses, the LPS profile of the
non-mucoid strain PAO1 show more very long O-antigen compared to its mucoid derivative strain PDO300. Non-mucoid
strain PDO300algD O-antigen is similar to PAO1. RT-PCR analyses suggest that transcriptional differences in wzz2 may be
responsible. To determine whether the promoter activity of wzz2 accounts for these phenotypes, the wzz2 promoter was
amplified by PCR and inserted into the miniCTX-lacZ plasmid and will be mobilized into PAO1, PDO300 and PDO300algD
to assay promoter activity.

10. Lydiah Fridah Maxmillian Mpyisi: Roanoke College Department of Chemistry
Understanding the Four Glutamine Synthetases Found in Mycobacterium Tuberculosis
Tuberculosis is a communicable disease caused by Mycobacterium tuberculosis. It has been reported to cause the second
largest number of deaths worldwide after HIV/AIDS. One major challenge facing tuberculosis is resistance to drugs by
Mycobacterium tuberculosis. Some studies have shown that glutamine synthetase, an enzyme that catalyzes the conversion of
glutamate to glutamine - the cell wall component that contributes to drug resistance, may be the potential target for antibiotics. Thus, this research is focused on understanding why Mycobacterium tuberculosis has four types of glutamine synthetases. The binding (KM) and catalytic efficiency (kcat) of glutamine synthetase will be determined. This will be done by cloning, protein overexpression and purification, and then development of functional assays to determine kcat and KM. The roles of individual amino acids will be investigated through site-directed mutagenesis and kinetics. We hope that information from this study will contribute towards the development of antitubercular agents.

11. David Loftus: E.C. Glass High School; Sweet Briar College Department of Biology
Testing the Anticancer Effects of Pt and Pd Compounds
Two novel compounds were produced and tested for anticancer activity. Tetrachloro (1,10-phenanthroline-5,6-dione) platinum(IV) and tetrachloro (1,10-phenanthroline-5,6-dione) palladium(IV) were synthesized from potassium hexachloroplatinate, potassium hexachloropalladate, and 1,10-phenanthroline-5,6-dione. Cultures of MDA-MB-231 breast carcinoma, HT1080 fibrosarcoma, and WI-38 normal lung cells were exposed to these two compounds and a known anticancer agent, cisplatin. The effectiveness of the compounds was determined using an MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) cytotoxicity assay. Absorbance data were obtained and percent cell survival relative to the control was determined. The novel compounds were more effective than cisplatin against the fibrosarcoma but less effective against the breast cancer line. The compounds killed more normal cells than cisplatin. Since the fibrosarcoma was relatively resistant to cisplatin but very susceptible to the novel compounds, continued testing of cisplatin-resistant cell lines to see if these compounds are active against them is warranted. If they are, these novel compounds may prove effective against cisplatin-resistant tumors.

12. Jaquelyn Zoine: Loyola University Maryland Department of Physics
Analysis of a Potentially Activating NTRK2 Mutation in Non-Small Cell Lung Cancer
Co-authors: Ahn Le, Aria Vaishnavi, Tatiana Kutateladze, Robert Doebele
Genomic DNA sequencing of a tumor sample from a non-small cell lung cancer patient identified a c.4940C>T mutation in the
neurotrophic tyrosine kinase, receptor, type 2 (NTRK2). This mutation encodes a R691C amino acid substitution in the
TrkB receptor tyrosine kinase. The patient did not have any other identifiable oncogenic mutations, such as EGFR, KRAS,
ALK, ROS1, etc. This mutation has been previously identified in an ovarian cancer sample (COSMIC), but no studies
reporting the functional significance of this mutation have been published. Activating mutations in the Trk family of
receptor tyrosine kinase family are of interest because Trk-selective kinase inhibitors have recently entered clinical trials.

13. Auzeen Abbassi and Dara Niketic: Randolph College Department of Biology
Improperly Prepared Slow Sand Filters Can Harbor Waterborne Pathogens
Slow sand filters employ biotic and abiotic processes to inactivate waterborne pathogens. The formation of a surface biofilm
layer known as a schmutzdecke is essential to effective reduction of waterborne pathogens. Little is known about the microecology of the schmutzdecke. We constructed and passed Blackwater Creek water through a slow sand filter prototype. Total influent and effluent coliform bacteria and Escherichia coli were quantified weekly. A horse manure slurry was added to simulate passage of solid waste through the filter. Establishment of a schmutzdecke was not observed. Moreover, after addition of the manure slurry, effluent E. coli cell counts exceeded influent counts by several orders of magnitude. This effect persisted for many weeks. Our results demonstrate that improperly prepared slow sand filtration devices can have opposite the intended effect and act as a reservoir for waterborne pathogens.

14. Emily Cutshall and Amanda Pendergrass: Radford University Department of Biology
Characterizing Environmental Bacteria from the Brinton Arsenic Mine
Arsenic is considered the most prevalent environmental toxic metal. Arsenic contamination of ground water used for drinking and irrigation is a global environmental problem. Research shows that bacterial detoxification is the major mechanism that releases arsenic into ground water systems. Our study site is the Brinton Arsenic Mine in Floyd County, VA. Our research team isolated bacteria from the mine, identified them, and the presence or absence of three arsenic resistance genes. Additionally, we determined their ability to grow in various concentrations of the two most prevalent forms of arsenic, arsenate and arsenite, by measuring Minimal Inhibitory Concentrations (MIC) of each form. We hypothesized that the MIC for each of the bacterial cultures would correlate with its ability to grow in environments with high concentrations of arsenic and that the MIC correspond to expression of arsenic resistance genes.

15. Ngoc Bich Pham and Katherine E. Riedel: Randolph College Department of Biology
Sequence Analysis of Mitochondrial DNA from Human Tooth Samples in the Randolph College Natural History Collection
The goal of this project was to isolate and analyze mitochondrial DNA (mtDNA) from 1,500 year old human tooth samples retrieved from an ancient burial site in Tunisia. DNA sequence analysis may reveal information about the number, ethnicity, and degree of relatedness of individuals interred at the site. Sixty teeth were processed and DNA retrieved from seven of them. These seven samples were then amplified using a polymerase chain reaction primer set specific to mtDNA hypervariable region 1 (HV1) and the products submitted for sequencing. Five of the samples were confirmed to be human mtDNA, while the other two had DNA sequences homologous to the potato leaf roll virus. We compared the five human mtDNA sequences and determined that they could be placed into three clades. The identification of DNA from potato leaf roll virus could reveal information about the diet of individuals interred at the site.

16. Travis H. Lumpkin: Roanoke College Department of Biology
Identification of Carboniferous Fossils Found in Beckley, WV
Co-authors: Dr. Dorothybelle Poli, Dr. Alton Dooley
Fossilized material from the Carboniferous period has been unearthed in the Appalachian region over decades. Virginia, West Virginia, Mayland, and North Carolina have all found fossils depicting a variable and diverse ecosystem involving gigantic horsetail ferns, dominating fern trees, and lycopodial trees with long blade-like leaves and intricate leaf scaring. Most of the fossil record from that time period is captured in shale formations surrounding coal deposits. The fossilized plant material from Beckley, WV in the Boxley collection appears in grey slabs of rock, with impressions detailing the physiology of these massive preserved trees. This project works with the Virginia Museum of Natural History to study these fossilized remains to depict an ecosystem 300 million years old that no one has seen before and make statements about the nature of its ecology. Through illustration and identification, over eighty separate species have been identified over the course of the study.

17. Camille Fagan: University of Richmond Department of Biology
Anatomy of the Subterranean Cleistogamous Flowers of Commelina benghalensis (Commelinaceae)
Anatomical studies of the federally listed noxious weed Commelina benghalensis were undertaken to document structural and developmental details of its subterranean cleistogamous flowers. Specimens were collected in Richmond, VA and prepared for microscopic study. Results confirm and extend earlier literature. Cleistogamous spathes are solitary, axillary, subtended by a leafy scale, and bear a single bisexual flower. Three sepals enclose other floral organs, including three petals, three posterior non-functional staminodes, three functional anterior stamens, and a three-carpellate gynoecium. Functional stamens have a well-developed endothecium, and pollen grains are enveloped in amoeboid tapetum. Ovules are orthotropic, bitegmic, and crassinucellate. Details of pollination within these closed flowers remain obscure. In some flowers, anthers were found in direct contact with stigmas, suggesting that pollen could germinate while still inside the anthers. Cleistogamous flowers produce dimorphic seeds, one large seed in the posterior locule and two small seeds in the anterior locules.
18. Lindsey Sharman: Randolph-Macon College Department of Biology
Examing the Enhancement Drink NeuroBliss(R): Lack of Effect on Mood and Memory in Late Adolescents
Co-authors: Marika Beale, Ryan Gestwick, Garrett White
NeuroDrinks® are beverages designed to enhance certain aspects of consumers’ lives. The NeuroBliss® beverage is marketed as a product that helps reduce stress, enhance mood, provide focus and concentration, and promote a positive outlook (drinkneuro.com/bliss). NeuroBliss® contains some anxiolytic and memory boosting ingredients, such as L-theanine, chamomile, Alpha GPC and Vitamin D. We tested the impact of NeuroBliss® consumption on measures of mood, memory, and anxiety in undergraduate students. After a mood pre-assessment test, undergraduate students consumed either one bottle of the original NeuroBliss® blend (n=14) or a placebo (n=16). Participants then attended a college level biology class and took a mood post-assessment test and a memory test approximately three hours later. Statistical analysis using both paired and unpaired t-tests indicated that NeuroBliss® had no significant effects on anxiety levels, mood, or memory. The results indicate that NeuroBliss® did not provide the advertised effects in an undergraduate population.

19. Joshua Albert: Randolph-Macon College Department of Biology
Exploring the Relationship Between Creativity and Lucid Dreaming
Co-authors: Katherine Houle, Sarah Kalasinsky Jessica King, Selena Washington, Erin Clabough
Lucid dreaming is the occurrence where individuals are aware that they are dreaming, and sometimes are able to control the dream. The metacognition of lucid dreams appears as prefrontal cortex activation, which has also been linked to creativity. Our experiment measured the incidence of lucid dreams in a population and examined the relationship between lucid dreaming and creativity. Participants were given a creativity test, instructed on pre-sleep autosuggestion, and given a dream journal. At the conclusion of 1 week, subjects took a 2nd creativity test. We hypothesized that creative people would lucid dream more, and that training in lucid dream techniques might boost creativity in participants. Statistical analysis found no significant difference in creativity between lucid dreamers or non-lucid dreamers (n=47), nor that 7 days of pre-sleep autosuggestion increased creativity. However, lucid dreaming training over a longer timespan should be explored.

20. Khirsten Cook: Sweet Briar College Department of Creative Writing
Ekphrastic Writing Using the Sweet Briar Art Collection
Ekphrasis allows artists to use one artistic form such as painting or writing to create a new work in response to another. My project allowed me to further explore the process of ekphrasis by writing poems and short stories in response to pieces from the Sweet Briar Permanent Art Collection. The story I wrote in response to Carrie Mae Weems' print Some Said You Were The Spitting Image of Evil, deals with race and religion from the perspective of the teenage daughter of a white missionary and an African woman, growing up in the small, West African village of Ganvie in the 1850’s. The story takes place in the early 1850’s because although the slave trade would be coming to a close within the next few years, slave merchants still roamed the African coast and laws such as the Run Away Slave Act were still being passed by Congress.

21. Yekaterina Cheremeteff: Christopher Newport University Department of Psychology
Music and Malevolent Creativity
Many have studied the effects of music on creativity, but, thus far, there have been no empirical investigations into the influence of music on malevolent creativity. The purpose of this study was to investigate how various genres of music impacted malevolent creativity. Forty-four participants from a southern liberal arts university were exposed to three music genres (classical, pop, and post-hardcore) and after each genre, were asked to generate as many uses for the given household item (brick, pencil, cardboard, paper), and then given an empathy posttest. An ANOVA was run to determine the fluidity of responses, and the malevolent uses that were given for each genre. Results indicated that there was a significant difference between genres of music on malevolent responses and a significant difference between the number of uses given for each genre. This can be attributed to significant differences in empathy levels. Keywords: Malevolent, creativity, music genre, empathy.

22. Not included in proceedings.

23. Emily Reed: Christopher Newport University Department of Psychology
The purpose of this paper is to determine whether electroconvulsive therapy (ECT) is a necessary and effective means of treating major depression. ECT consists of a series of shocks administered to a patient over a certain period of time. Studies have been conducted and have determined that there are many fluctuations in how ECT is administered, and different forms
lead to different cognitive effects including, but not limited to, long-term memory loss, short-term memory loss, and retrograde amnesia. What needs to be considered more is the collateral influence of such a procedure, and the ethical and scientific questions of the procedure’s current validity. Current research shows the benefit of ECT does not outweigh the potential harm done to patients. The paper concludes with a discussion concerning how clinical practitioners better serve their clients in a healthy and progressive way.

24. K. Mikaila Hudson: Christopher Newport University Department of Psychology
Interventions and Positive Coping in Pediatric Patients with Cancer
While cancer is a devastating disease for all who are diagnosed, children who are diagnosed with cancer are particularly at risk for physical and emotional difficulties. Cancer is the leading disease-associated cause of death for children between the ages of one and fourteen (Li & Wendt, 1998) Pediatric patients with cancer are at higher risks for stress disorders, depression, anxiety, and lower quality of life than children who do not have cancer. Furthermore, stress disorders and depression often go undiagnosed in these patients. Because of the higher risks for these health-related issues, it is important for health professionals working with pediatric patients with cancer to promote adaptive coping skills. This poster examines several interventions, such as humor, magic, comfort through small acts of kindness, and parent involvement, which can promote positive coping. Practical implications of these intervention findings are discussed.

25. Ashley Shoell: Mary Baldwin College Department of Sexuality and Gender Studies
Preliminary Results of the Contributions to Academic Success of Non-Caucasian Sexual Minorities
Higher levels of academic success provide an opportunity for personal, educational, emotional, and economic growth. The following study explored contributors to academic success. A qualitative analysis on the narrative responses of 79 non-Caucasian identified sexual minorities was conducted. Responses were collected to examine the resiliency factors they identified that have contributed to their academic success. Data was collected using an online questionnaire. Preliminary results identified emergent themes that contributed to their academic success as follows: viewing education as an opportunity to achieve goals, internal motivations, credit to others, institutional structures and support systems, social communities, external pressures, and studentship skills.

26. Lynn-Ellin Zeigler: Christopher Newport University Department of Psychology
The Influence of Nature Reverence on Mental Health in a Quechuan Community: Insights for Traditional Western Psychotherapy
This paper presents a theoretical model illustrating the relationship between a cultural connection with nature and a decreased impact of traumatic experiences. Specifically, this analysis involves the observational research of an indigenous Quechuan community of the Amantaní island in Lake Titicaca. Despite maintaining communication with the primarily Spanish Catholic mainland city of Puno, Peru, the Amantaní residents have retained their native belief in a deep connection with nature as a godlike entity. For example, the island's two central peaks are named Pachamama (Mother Earth) and Pachatata (Father Earth) and serve as a sacred place for personal reflection and gratitude for nature's provisions. From a mental health perspective, this reverence of nature maintains both self-identity and community cohesion. A stable self-identity and persistent social support leads to an increased resilience toward traumatic experience. A cultural relationship with nature also allows for the adaptation, growth, and sustainability of a community.

27. Timothy Koch: Christopher Newport University Department of Psychology
Level of Morality in Association with Religious Affiliation
It has been theorized that religion has arisen for the purpose of forming groups in order to better enhance chances of survival (Widman, Corcoran, and Nagy 2009). This study seeks to analyze if such a group is necessary for moral judgments to be made by analyzing level of morality in association with religious affiliation. It is hypothesized that no difference will be observed on levels of morality among religious affiliations. Participants will be gathered through the university’s SONA system, will first read and sign the informed consent form, complete the Moral Judgment Scale (Yu, 2012), and be asked demographic information, including age, sex, class standing and religious affiliation. The level of morality will be coded on a Likert-like scale, with higher scores being considered synonymous with a higher level of morality. Means of different religious affiliations will be measured using a one-way ANOVA.

28. Dixie Martin: Sweet Briar College Department of Psychology
The Transition to College: Indicators of Positive Adjustment and Early Warning Signs
Co-author: Dr. Jessica Salvatore
The transition from high school to college has garnered increasing attention from researchers in the last two decades, likely
because more and more high school graduates are seeking four-year degrees. Education is the supposed key to upper mobility in American society, but not everyone fares well in college. This invites the question: what factors predict adjustment and thriving? In order to discern some of the factors relating to college adjustment, we surveyed incoming first-year students from two institutions over a two-week period. The degree to which individuals felt they had changed since arriving at college was positively correlated with their anxiety levels. In contrast, the degree to which they felt they had been an agent of change was associated with more positive feelings, suggesting that feeling like an emerging leader may facilitate the adjustment process.

29. Not included in proceedings.

30. Emani Wade: Christopher Newport University Department of Psychology
Visual Images on Student Learning of Data Interpretation
This study examines computer interface on how much visual detail compared to text-only instructions will help or discourage students from understanding the importance of data interpretation. These interpretations predict an experimental outcome from data collected that shows a relationship similar to a real life scenario. These instructions can either be given with words that have concrete meaning or pictures that show abstract qualities with an underlying concrete idea. Each condition has varying levels of detail on the lesson of interpreting data from an experiment. In addition to computer instructions, the student’s individual learning style is assessed on how well they interact with visual and non-visual conditions based on their preferences for receiving information. It is hypothesized that students in the most concrete condition will do well with the combination of visual detail and contextualized descriptions that will eventually fade into abstract understanding for children to learn and transfer knowledge.

31. Haley Elder: Sweet Briar College Department of Psychology
Social Media: The Effects of Persuasion in Computer-Mediated and Written Paper Form Settings
Co-author: Jacqueline Oliver
The goal of this study was to provide empirical evidence to further knowledge on social media and the effects of persuasion in computer-mediated and written paper form settings. In the present study, we measured the effects of message content and form of communication on attitude change and amount of persuasion when presenting information on online learning. The focus of this experiment was to explore the medium, or what is hypothesized to be a match between source credibility of the peripheral route to persuasion and message content. Results revealed that the online pro condition proved to be the most persuasive and overall, pro information presented in both the computer and written print settings was significantly more persuasive than the con information.

32. Lauren E. Shriver: Christopher Newport University Department of Psychology
The Effects of Priming and Source on the Believability and Recognition of Headlines
Co-authors: Sarah Davis, Taylor Thomas, Danielle DeLucia, Nessalyn Pearce, Morgan Epstein, and Christopher Boyer
Past research has shown that headlines labeled by a tabloid source were more believable and better recognized than headlines labeled by a reliable news source (Epstein et al., 2013). Our recent experiment expanded on these findings by investigating the relation between news source, skepticism, media skepticism, and priming condition on believability and recognition of believable and unbelievable headlines. The results supported past research suggesting headlines labeled by a tabloid source were more believable and better recognized than headlines labeled by a news source. Similarly, these results demonstrated a positive relation between skepticism levels and believability ratings. Moreover, participants primed with a tabloid or social media reading had higher media skepticism ratings than participants primed with a news source reading or control condition. In order to strengthen the validity of the experiment, additional participant data will be collected, analyzed, and compared to these findings.

33. Jessica Gladfelter: Roanoke College Department of Psychology
Attractiveness in the Job Market: Can Attractiveness Outweigh Unconventional Body Modifications?
Co-authors: Katherine E. Sparagna, Brian D. Cash and Alison Sumbs
Attractive people are seen as more intelligent, as having better morals, and fare better in the job market than unattractive people; this phenomenon is known as the “beauty is good” bias (Marlow, Schneider, Nelson, 1996; Griffin & Langlois, 2006). Thus, it is logical that people strive to become more beautiful, so it is counter-intuitive that these same people obtain facial piercings which have been shown to cause an opposite effect of this “beauty is good” bias. Those with facial piercings are seen both as less attractive and less intelligent (Martino and Lester, 2011). The current study examined whether the presence of a nose piercing affected participants’ success ratings of marketing job applications. Specifically, we examined if
there was a difference in applicant success rating between attractive people with nose rings compared to unattractive people with nose rings. Gender and in-group/out-group differences were also examined.

34. Kalli Wilson: Christopher Newport University Department of Psychology
The Fading Affect Bias in Romantic and Sexual Relationships
Co-authors: Taryn Lewis, Emily Darugar, Kyle Horowitz, Crystal Singleton, Rhianan Banks
The fading affect bias (FAB), is the tendency for unpleasant emotions to fade over and above pleasant emotions (Walker et al., 1997). The study examined the FAB in romantic or sexual relationships. Participants included undergraduate students between 18 and 25 years old. Participants completed questionnaires regarding personality, self-esteem, partner esteem, attachment and self-reported relationship and non-relationship events. We expected to replicate FAB, with fewer and longer relationships, as well as partner esteem predicting large FAB. Fading affect (FA) was larger for unpleasant events than pleasant events. FA was larger for relationship events than non-relationship events. FA for pleasant events was larger for relationship events than for non-relationship events. Partner esteem negatively predicted pleasant FA and positively predicted both unpleasant FA and FAB. FAB differed across event type. Partner esteem was important for retention of pleasant emotions in relationship events.

35. Nessalyn Dearce: Christopher Newport University Department of Psychology
Fading Affect Bias Across Video Game and Non Video Game Related Events
Co-authors: Lauren Shriner, Sarah Davis, Taylor Thomas, Danielle DeLucia, Hannah Nierle
Past research (Walker, Vogl, & Thompson, 1997) has shown that emotions associated with unpleasant events fade to a greater extent than emotions associated with pleasant events. This phenomenon is called the Fading Affect Bias (FAB). Past research has also demonstrated a relation between problematic video game play (PVP) and emotional regulation (Oggins & Sammis, 2012). However, research has not investigated the relation between FAB and PVP for video game related and non video game related events. The current study will examine the relation between FAB and PVP across video game and non video game related events. We hypothesize that FAB will be highest for individuals who report frequent video game play and/or score high in PVP when they describe video game related events. Conversely, we expect the FAB to be highest for individuals who report infrequent play and/or score low in PVP when they describe non video game related events.

36. Nicholas Sherwood: Christopher Newport University Department of Psychology
The Motives and Incentives of Sex Traffickers: A New and Necessary Approach
Sex trafficking is the kidnapping and forced prostitution of an individual with the intention of creating profit for a trafficker. Perpetrators of trafficking pose unique challenges to psychotherapists and other mental health professionals because traffickers rarely seek treatment for their pathological behavioral pattern. Researchers have a pressing need to understand the motives and incentives which explain why an individuals perpetuate the sex trafficking process. By understanding the motivation behind committing these acts, psychotherapists specifically and society in general may develop interventions to mitigate this vicious human rights violation. The mental health field has a responsibility to study and to treat new forms of mental distress in all persons- including human traffickers.

37. Paige Bloomquist: Christopher Newport University Department of Psychology
Surveying University Students’ Hand Washing Behaviors and Hygiene Habits
Researchers surveyed college students regarding hand washing behaviors and other hygiene habits. Self-reports showed many significant correlations across hand washing tendencies and hygiene habits. Most importantly, damp hands after students had washed and dried their hands were associated with student forgetting to hand wash and seeing hand washing as inconvenient. Cigarette smoking was also associated with student forgetting to hand wash and seeing hand washing as inconvenient. Results were suggestive of student risk for pathogen spread and contamination.