Andrew Miles: Roanoke College
Department of Philosophy
Good, Evil and Well-being: Sam Harris’ Scientific Approach to Ethics
One of the most controversial debates in ethics is how to define Good and Evil. Do “good” actions necessarily adhere to commandments set by a God? Or are there many different, equally valid definitions based on cultural norms? Neuroscientist and author Sam Harris argues that the only concrete basis of ethics—and, therefore, the basis of Good and Evil—must come from science. Harris combines established utilitarian philosophy with the evolving field of neuroscience to create a foundation of morality based on physical and mental well-being. In this presentation I will analyze Harris’ ethical framework as well as examine Harris’ arguments against other ethical systems, including divine command theory and moral relativism.

Brianna Melchione: James Madison University
Department of History
The Influence of Science on Dr. Stribling’s Practice of Moral Medicine at Western Lunatic Asylum
Before the nineteenth century, the mentally insane were typically taken care of by their families or local churches. The insane would be moved to an almshouse or jail only if the family was unable to provide for them. The rise of asylums and institutions began in the early nineteenth century when the state governments decided to intervene and help solve the difficulty of caring for the insane. At the same time that families and churches were not able to take care of the growing number of them in the communities, scientists were experimenting with treatments and studying the causes of insanity. Throughout the nineteenth and twentieth centuries there were many changes concerning science and medicine, the causes of insanity, and how to best to treat it. Stribling’s attitude concerning treatment of the insane by use of moral therapy reflects the place that science was at that time.

Paul Kuveke: Washington and Lee University
Department of Philosophy
Morality and Free Will in the Critique of Pure Reason
In the Critique of Pure Reason Immanuel Kant tries to leave room for morality by postulating its connection to free will. He claims that for morality to exist free will must also exist. The purpose of this paper is to analyze Kant's argument for morality as a possible by-product of free will. The engagement of his argument will lead me to the conclusion that morality may exist as noumena in Kant’s system, but the result of morality as noumena invalidates the necessitation of free will because morality can exist as noumena in a world of strict determinism. My conclusion will stem from Kant’s own explanation of noumena and find further support from moral theorists such as Phillipa Foot and Sharon Street. By extension, the paper will offer further problems that Kant’s argument for free will creates and note the significance of each.

Charles Lein: James Madison University
Department of History
Song of Ourselves: Transcendentalism and the Development of the American Identity
The Transcendentalists were responsible for the first great intellectual movement that was uniquely American, playing a critical role in the American Renaissance and the formation of an American identity. The movement would move beyond the boundaries of New England intellectual circles and to the rest of America through authors such as Walt Whitman, one of the greatest American poets. In drawing from ideologies as diverse as Unitarianism, Calvinism, German Idealism, and Hinduism, and by utilizing contemporary scientific and political ideas such as evolutionary biology and democracy, Transcendentalism developed progressive, egalitarian, and cosmopolitan characteristics that it then passed on to the sense of the American national identity.

Tiara Mehic: Roanoke College
Department of Philosophy
The Adversaries of War: How Kant Walks the Line between Realism and Pacifism

War has become an ever-threatening reality in the lives of many. One party offends the other, they become enemies, diplomatic negotiations fail, and the only option left is to go to war. However, this view is not shared by all. There is a distinct difference between people who immediately want to go to war and people who try to avoid it at all cost. These groups are known as realists and pacifists. But, what about the people that walk the line in the middle? What about Immanuel Kant, this famous philosopher whose words and knowledge expanded our views on phenomenology? Was he a realist, a pacifist, or something in between? By using extensive research I will prove that Kant did not fit into either one of the radical categories, but instead created a stance for himself, a category termed Kant’s Just War Theory.

Session II 9:30 – 10:30 AM
Phillip Kroke: Virginia Military Institute
Department of Psychology
Dangerous Driving as a Risk Factor for Suicide in a College-Aged ROTC Population

This study addressed the tentative connection between suicide risk and Motor Vehicle Accidents (MVAs). The scientific literature previously on this topic reflects mixed results. Some studies stress a possible unconscious suicidal motivation in drivers involved in MVAs. Ninety-six students at a military college in Virginia were surveyed about their driving habits and suicidality. Sixteen responded that they had thought about purposely crashing or killing themselves using their cars within the last two years (17%). Those 16 “ideators” produced fewer Reasons for Living on RFL Survival/Coping Beliefs subscale than their counterparts. Ideators also produced higher scores on the Fear of Suicide subscale. The combination of fear of suicide and hope for the future could constitute protective factors that inhibit their suicidal tendencies, or the choice of a less lethal suicide method. This study is partially supportive of the view that some “accidental” vehicle collisions may involve an underlying desire to die.

Alexandra Barton: George Mason University
Department of Anthropology
"Not in my Navy," Redux: Sexual Assault Policy at the United States Naval Academy

Since women began attending service academies in 1976, the U.S. military has struggled to mediate the area of gender and power relationships among students. Every year, the Department of Defense (DoD) performs surveys and focus groups to gather students’ perceptions of gender relations in the academies. I contrast the DoD’s analyses of these reports with my interviews of U.S. Naval Academy alumni, who suggest a more complex situation exists than what is portrayed. I argue that, despite the increased implementation of sexual assault prevention programs and the emphasis on gender equality, the hyper-sexualized cultures of service academies and complex reporting processes form environments that do not encourage victims of sexual harassment and assault to seek help. This paper follows up on the DoD’s reports in order to understand sexual assault, student relationships, and the gender gap at these academies in an ethnographic context.

Dana L. Brookover: Christopher Newport University
Department of Psychology
Undergraduate Beliefs about the Death Penalty

Capital punishment is a social topic that often ignites heated debate and differing opinions. The finality of the punishment requires constant and detailed research on public beliefs, and dichotomous polling is insufficient. The top reasons for support and opposition to the death penalty by undergraduates at a Mid-Atlantic university are presented. Students reported their death penalty opinions on 37 items including an open-ended response. This study includes an updated look into young people’s cognitions about the death penalty and how these influence attitudes. Demographics in connection to beliefs will also be analyzed. Conclusions can be drawn about the amount of accurate knowledge participants have received on capital punishment thus far. This study can be a valuable tool for policy makers and instructors of all levels.

Kristi Holt: Roanoke College
Department of Psychology
Effects of Teaching Style and Cell Phone Interruptions on Learning
Co-authors: Clarissa Dulaney, Amelia Menezes, Lauren Schwarcz

Cell phone interruptions have been reported as one of the biggest distractions in classrooms today (Tesch, Coejho, & Drozdenko, 2011) and have been linked to impaired academic performance in students (End, Worthman, Mathews, & Wetterau, 2010). The present study sought to replicate these findings (End, 2010) and extend them by accounting
for both the impact of teacher immediacy and type of interruption. It was hypothesized that teacher immediacy would reduce the impact of both generic and song ringtone interruptions by keeping students’ attention focused on the lecture. Results suggest that immediacy behaviors were effective in lessening the impact these interruptions had on learning. Educational implications and future directions will be discussed.

Session III  9:30 – 10:45 AM
Courtney Marie Selvage: Sweet Briar College
Department/s of Classics/Medieval and Renaissance Studies
Laws, Queens, and Goddesses: Medb and the Táin, a Reconsideration
Despite previous analysis of the character Medb from the Táin Bó Cúailnge as a sovereignty figure; this paper examines Medb from a social perspective. I analyze the relationship between Ailill and Medb in comparison to the Old Irish marriage laws in the Cáin Lánamna, which illustrate the capacities held by the wife in a marriage. The relationship between Medb and Ailill is compelling, as Medb exerts significant control over her husband, which is ultimately inappropriate, even considering the amount of political power held by queens in early Ireland. Examining the Táin in terms of the laws declared in the legal documents provides a significantly deeper understanding of the relationship. This research takes our understanding of Medb in another direction - accentuating her femininity and expanding on the significance of her role as Cuchulainn’s adversary, and stressing her independence as a character, whose decisions and actions underscore her as queen of Connacht.

Bryan Jacobs: James Madison University
Department of History
The Institutional Subjugation of Women in Elizabethan England
During the reign of Queen Elizabeth I, England was a kingdom rife with deep international and domestic problems. As monarch, one of the defining elements of Elizabeth’s policy-making was its obvious relation to societal control. This was made especially clear towards women and a majority accepted the ideas, laws, religious, and daily-unwritten codes that dictated their lives. It is through these various institutions of Tudor society that the extent to which women were second-class was revealed.

Hannah Male: Sweet Briar College
Department of History
Sweet Briar College: Behind the Times
My paper looks at the connections between wider social movements and the faculty and students at the college. My testing areas are dress regulations, sports, religion, and social life during the Progressive period, the 1950s, 1960s, and 1970s.

Cabell Willis: Virginia Military Institute
Department/s of English and Fine Arts
Self-Expression Under Cover
The research presented here provides the historical context for The Writing Under Cover Project, a larger ethnographic study of the everyday literacy practices of VMI cadets, including the texts, photographs, poems, notes, letters, and inspirational sayings that they carry in their covers during their four years at VMI. In this study, the cadet cover and the artifacts therein serve as units of analysis for the personalities, identities, and motives of cadets. Drawing on archival research, personal interviews, and examples of cadet covers, this study investigates the practice of carrying items inside the cover and the role those items play as literacy artifacts. The presentation will focus on these artifacts and the way they suggest the degree to which cadets internalize the citizen-soldier ideal.

Jessica Murphy: Sweet Briar College
Department/s of Dance and Education
Why is Dance Important?
As the presidential election draws nearer, arts education and funding have become popular topics of debate. Funding for art organizations and education is constantly cut, and while this angers me, I could not explain why art, especially dance, is important. This past July, I traveled to Taipei, Taiwan to attend the dance and the Child (daCi) International Conference to further my understanding of dance education. As I reflected on my week's worth of notes from the multiple presentations, panel discussions, demonstrations, master classes, and performances by a diverse group of dance professionals, I realized that I had found my answer. Dance is of the utmost importance because it develops life skills, personal aesthetic, furthers understanding of the human condition, and is a means of
communication. If we can convince politicians of these benefits, we may be able to save future generations from the many disadvantages of unreasonable budget cuts.

Session IV  9:30 – 10:15 AM
Phoebe Jiang: Sweet Briar College
Department of Mathematical Sciences
Applications of Catalan Numbers
This research examines the definition and properties of Catalan numbers in order to give people an understandable description of this sequence of natural numbers, with a view to the rich variety of applications generated by Catalan numbers that occur in different counting problems. For this project, I will choose what I see as the three most representative types of applications of Catalan numbers: polygon triangulation, binary paths and trees, and posets. I will provide additional background information about posets, also referred to as partially ordered sets, because they comprise an important concept in mathematics in their own right. The main purpose of this research is to explore how Catalan numbers are applied in various cases and to produce an accessible write-up that can be understood by undergraduates and non-mathematicians alike.

Zhe Zhang: Randolph College
Department/s of Math & Chemistry
Strengthening the Four Color Theorem
The celebrated Four Color Theorem was finally proven by Kenneth Appel and Wolfgang Hacken in 1976 after more than a century of attempts. It states a fundamental truth known to any cartographer: To color any map of contiguous regions, real or imaginary, so that no two regions which share a border are colored the same, requires no more than four colors. In this talk, we describe our progress in formulating and proving a stronger theorem by adding additional restrictions to the coloring, while maintaining a four-color maximum.

Brian Ramsey: Lynchburg College
Department of Physics
Modeling of the 2012 Tour de France
An inclined-plane model is used to predict each of the stage-winning times in the 2012 Tour de France. The model produces four predicted stage times to less than 1% difference from the actual stage-winning times, eight predicted stage times to less than 2% difference, and eleven predicted times to less than 3% difference. The sum of all of the predicted stage-winning times is just 0.32% off from the sum of all of the actual stage-winning times.

Session V  11:00 AM – 12:15 PM
Cecelia Parks: Hollins University
Department of Political Science
Representing Pilgrims in Elementary History Textbooks and the Myth of the Founding of the American Nation
Both students and teachers consider textbooks reference sources. This accepted authority helps textbooks to persuasively establish particular myths. This paper examines the way that the portrayal of Pilgrims in two popular elementary United States history textbooks constructs a national myth that America is founded on ideals of tolerance, multiculturalism, and freedom. Three elements of the Pilgrims’ story, the First Thanksgiving, Pilgrim-Native American relations, and the Pilgrims’ American ideals represent Pilgrims as hard-working people who came to America to find religious freedom and found a society based on democratic ideals. Such accounts suggest that Pilgrims lived harmoniously with Native Americans and celebrated the First Thanksgiving with them. While this portrayal of Pilgrims appeals to America’s Western European heritage, it disregards the cultural hierarchy and oppression that actually occurred and disregards today’s multicultural classrooms.

Taylor Irish: James Madison University
Department of History
The Stench of a Lynch: The Trial, Exposure and Repercussions of a Southern Hate Crime
The murder and trial of Emmett Till was considered a catalyst to civil rights. The trial for the white men was corrupt and bias towards the murders. Due to the significance of the murder and trial, all media desired to cover the story. This research examines the major role that media played in intensifying emotions in both black and white citizens. I used several primary sources viewed through microfilm, to gain the most accurate data, as well as analyzed many
monographs of other’s research. Through this, I discovered to what lengths whites would go to uphold the Jim Crow Laws in the South, in regards to protecting those who were guilty. This research also presents the difficulties that African Americans faced during the late 1950s, when they believed no one would protect them. The murder of Emmett Till significantly impacted whites and blacks alike, introducing an altered view of discrimination.

**Shanna Hennessy: James Madison University**
**Department of History**
**The Moscow Salt Riot of 1648: A Turning Point in the Social and Political Status of the Russian Peasantry**
As the state of Muscovy grew and matured, there was a steady push from Russian nobility to secure peasant laborers to the land they worked. Myriad law codes and decrees were passed by Muscovite rulers to appease the nobles, ultimately resulting in a rather cumbersome collection of laws. In 1648, the peasantry of Moscow rose up in revolt against raised taxes on the precious commodity of salt. The resulting chaos of these revolts caused the tsar and the aristocracy to realize the need for a new, comprehensive law codification in order to further centralize the Muscovite state and gain greater control over the peasantry. Passed in 1649, the Ulozhenie law code was the culmination of the Russian nobility’s push to completely control the mobility rights of the peasants who worked their lands, marking the official subjugation of the Russian peasantry to the status of “serfs.”

**Ross Hawkins: James Madison University**
**Department of History**
**The Sparking: A Contextual Evaluation of Sheridan's Actions in Augusta County: September 25, 1864 to September 30, 1864**
Union offensive strategies during the latter half of the United States Civil War usually fall under Mark Grimsley’s category of “hard war”. However, history has over applied this term when describing the actions of various Union generals, such as Philip Sheridan during the Valley Campaigns of 1864. While certain areas within the Shenandoah Valley did experience significant degrees of civilian destruction, the Union armies seemed to overlook other localities. Augusta County presents a perfect example of an area that escaped Sheridan’s “Burning.” Subsequently, the citizens of this Upper Valley county had their resources generally left intact. With other areas of the Shenandoah Valley not fairing as well, Confederate impressment agents descended like locust to procure resources for the southern cause. Within this context, civilians in Augusta County came to fear Confederate impressment agents more than Union raiding parties for the duration of the war.

**Session VI  11:00 AM – 12:00 PM**
**William Baber: Virginia Military Institute and Benjamin Absher: Washington & Lee University**
**Department of Electrical and Computer Engineering**
**Tick Removal Robot**
**Co-author/s: Thomas Kendzia**
Recent studies have shown that over the past decade there has been a rise in the number of Lyme disease and other tick borne illnesses. Students at the Virginia Military Institute have designed an autonomous robot to remove the majority of ticks from household yards. In order to attract the ticks tube emitting CO2 is located around the household’s ecotone, a highly tick-populated area where a homeowner’s yard meets the woods. The tube also houses a wire that creates a small magnetic field. The robot tracks this magnetic field around the tube allowing it to drag a tick collecting mat. The first prototype tick removal robot was tested at Old Dominion University and removed 45±4 out of 50 ticks. Although this robot proved successful, it was not robust. An environmentally hardened version was constructed in 2012 and is in the processes of being independently tested.

**Yong Jun Kwon: Randolph College**
**Department of Physics**
**Mobile Monitoring and Assessment of Human Activity Levels**
**Co-author/s: Thawda Aung**
The student researchers will develop methods for the classification and characterization of two large behavioral data sets, human raw accelerometry data collected at the University of Nebraska, Medical Center. The results of the work on human accelerometry data will be important to the development of a mobile activity and location monitoring system that will be used to facilitate behavior modification in subjects with moderate Alzheimer’s disease and will be part of ongoing work funded by a grant from the Alzheimer’s Association.
Kathryn Fanta: Sweet Briar College
Department of Engineering
Development of an Actuator through Experimentation with the Electrowetting Phenomenon
Co-author/s: Huihui Wang and Dr. Michael Reed: Department of Electrical and Computer Engineering, University of Virginia
The electrowetting effect has incredible potential to be utilized in a variety of applications, but has yet to be commonly used. The application proposed in this study is an actuator that takes advantage of the electrowetting effect and the increased capillary force on the micro-scale. Several different liquids are being tested in order to find the one best suited to being used in an actuator. This study describes the testing of high purity deionized water, “regular” deionized water, and a gold nanoparticle solution. The tests are run on a silicon wafer on which a layer of SiO2 has been thermally grown. A hydrophobic Cytop layer is then spun onto the SiO2. A DC voltage is used for all tests but the polarity is varied. Results show that the greatest change in contact angle is experienced by the gold nanoparticle solution with a negative voltage, which suggests ideas for future research.

Matt Rutherford: Christopher Newport University
Department of Neuroscience
Parallel Processing and Underactuation in Robotics
Co-author/s: Dustin Ingersoll, Dan Tomaino, Beauregard Buchanan, Chelsea Heil, Dylan Ward
Robotic arms are often highly complex in respect to both hardware and software. Using the principles of underactuated engineering, we are developing a highly simplified yet versatile arm architecture that will eventually be capable of complex movements without the resources of the more complicated counterparts. Each segment of the arm works in parallel, each iterating over their own part of the same problem – in this case, reaching for a certain point in space given by the user. This design allows for a highly adaptable, modular architecture through the use of object-oriented programming and parallel processing, making each segment of the arm seamlessly interchangeable with any of the other segments. The architecture is also highly efficient: processing requirements and material costs scale linearly with arm length. The modularity and efficiency of design lends itself well to a wide range of tasks, and we expect that range to grow as we continue developing it.

Session VII  11:00 AM – 12:15 PM
James Priebe: Christopher Newport University
Department of Organismal, Environmental, and Molecular Biology
Using ‘Rusty Rods’ as a Measure of Hydrology in a Created Wetland in Loudoun County, VA
Co-author/s: Shawn Wurst and Dr. Robert Atkinson
Establishment of appropriate depth to water table is essential to the ecological success of a created wetland. Iron oxidation in steel rods placed in soil (‘rusty rods’) has been shown to provide a low-impact, low-cost approximation of water level in wetlands. The goal of this study was to determine the efficacy of ‘rusty rods’ at a wetland created on a clayey soil in Loudoun County, VA. During 2012 growing season, steel rods were placed in 24 locations throughout a 3.2-ha created wetland. Depth of oxidation from soil surface was measured for each rod after a four-week incubation and rust appeared deeper in the soil as the growing season progressed, generally reflecting commonly reported water level trends for wetlands in Virginia. However, correlation of rust depth and water table depth (R^2 = 0.415, p < 0.001) suggests that ‘rusty rods’ may also be influenced by other factors.

Adam Teufel: Virginia Military Institute
Department of Biology
The Effects of Estrogen and Nitric Oxide Deprivation on the Morphogenesis of the Caudal Fin in Embryonic Zebrafish (Danio rerio)
Estrogen (E2) is a hormone that greatly affects the development and health of the cardiovascular system (CVS) through its regulation of nitric oxide synthase (NOS). Recent results from our lab have shown that both an aromatase inhibitor (AI), which blocks E2 synthesis and a NOS inhibitor (NOSI) severely inhibit caudal blood vessel development in the embryonic zebrafish. Since the caudal fin is a late developing appendage in the zebrafish, we hypothesized that both AI and NOSI treatments would compromise caudal fin development due to reduced vascularization of the caudal appendage. Embryonic zebrafish were treated with either AI or NOSI solutions starting at 48 hours post fertilization (hpf) and continuing until three days thereafter. The size, cross sectional area of caudal fins, was analyzed using the NIH ImageJ morphometric analysis software. Results from these experiments validate this hypothesis. Specifically, caudal fins were significantly smaller after either AI or NOSI treatments along with vascular bed diminishment.
Brittany Bowen: Christopher Newport University
Department of Biology
Floristic Composition of a Created Wetland in Loudoun County, Virginia
Co-author/s: Brittany Bowen, Jackie Roquemore and Robert B. Atkinson
Species composition and abundance of plants in an area can give insight regarding environmental conditions. The purpose of this study was to characterize floristic composition of three created wetland sites in Loudoun County, Virginia. During the 2012 growing season, aerial cover of all herbaceous species was measured in 24 plots in three sites. Importance, wetland status, invasiveness, and conservatism were determined for 29 species. Juncus effusus had highest importance (31.5); mean weighted average for each site was 2.07 ± 0.22, 1.34 ± 0.09, 1.85 ± 0.064; 1 species was classified as moderately invasive (Arthraxon hispidus); and the overall combined FQAI value was 19.4. These results suggest the sites supported moderate diversity, had hydrologic conditions typical of wetlands, and had a high level of ecological disturbance.

Christian Lehman: Hampden-Sydney College
Department of Biology
Identification and Quantification of T-DNA Inserts in Arabidopsis thaliana
In order to further the understanding of genetics in Arabidopsis thaliana, a model organism for plant research, we aimed to identify and quantify the number of T-DNA (Transfer DNA) insertions in numerous preexisting strains of A. thaliana mutants. Our methods involved the isolation of DNA from leaf samples, PCR, gel electrophoresis, and the quantification of gel band intensities using ImageJ software. Using Quantitative PCR, we identified specific correlations between gel band intensity and the true number of T-DNA insertions. By establishing a ratio of intensity to number of inserts, we can not only learn more about the genetic code of A. thaliana, but establish a faster, inexpensive method of researching plant genetics in the future.

Kristina Kowalski: Christopher Newport University
Department of Organismal, Environmental, and Molecular Biology
A Survey of Vegetation in Forested Areas of the Great Dismal Swamp Before Weir Installation
Co-author/s: Mellony Seidel and Robert B. Atkinson
Historic alteration of hydrology in the Great Dismal Swamp (GDS) has lowered water tables, favored invasive plants and caused peat loss. Plans to install water control structures (weirs) will raise water levels and may affect the plant community; thus, the purpose of this study is to assess baseline conditions in plant community structure. Seven plots were established in the east region of GDS near the Virginia/North Carolina border, species dominance was determined within tree, shrub, and herbaceous strata. Greatest dominance in each stratum was reported as Persea palustris (FACW), Clethra alnifolia (FACW), Toxicodendron radicans (FAC) and Clethra alnifolia, and Vitis rotundifolia (FAC), respectively. Once water levels begin to rise after weir installation, the vegetation will be monitored for signs of stress including changes in foliage color and shifts in plant community dominance.

Session VIII  11:00 AM – 12: 15 PM
Chris Olsen: James Madison University
Department of History
Foreign Policy of the Emperor Julian: His Persian Campaign
Amidst the turmoil of fourth century Rome emerged one of the most prominent and polarizing figures in late antiquity, the emperor Julian. This presentation will examine Julian’s foreign policy record, specifically regarding his Persian campaign and subsequent defeat and death. Julian’s foreign policy decisions surrounding his Persian war, including both his diplomacy with Persia and his relations with other nations during the war, show how a mix of political circumstances and Julian’s own personality produced the perfect conditions for the launching of his ill-fated Persian campaign. Taking advantage of Ammianus Marcellinus, Libanius, and other primary sources, this presentation will show that Julian was so greatly rooted in traditionalism, that he considered himself the next in a line of great conquerors from the past, and that he showed this in his foreign policies while simultaneously using those same traditionalist policies to distance himself from his predecessors in the House of Constantine.

John Stang: Roanoke College
Department of History
The Soviet Psychologist: George F. Kennan and the Early Intellectual Evolution of Containment, 1940-1948
George Frost Kennan submitted the famous “Long Telegram” on February 22, 1946. This telegram shook the
foreign policy establishment in Washington. In the memo, Kennan wrote about the motivations for Soviet behavior, reacting to the 1946 Soviet Politburo elections and the Soviets refusal to join the World Bank and the International Monetary Fund. Kennan later published his thoughts in an article for Foreign Affairs called “The Source of Soviet Conduct,” under the pseudonym “X.” In the “X” article, Kennan suggested a method of containment be applied to the Soviet Union, using mostly peaceful means. Kennan later implemented his ideas as head of the Policy Planning Staff to help write the European Recovery Act (Marshall Plan), in 1948. Furthermore, the paper concludes that Kennan was able to influence U.S. foreign policy with these documents because he understood the Soviet Union’s domestic politics and knew their motivations were purely based on power.

Rachael Stein: Sweet Briar College
Department of Government /International Affairs
Quantifying Education as an Essential Key to Economic and Social Development
Policy makers and academics alike assume that more education leads to greater development. More specifically, larger numbers of graduates have been directly linked to higher GDP per capita. Yet, as new theories emerge and exemplary case studies diverge from expected paths, the questions evolve: how does education affect social development and how important is the quality of that education? To answer questions that require both quantitative data and qualitative analysis, I have adopted econometric methods to establish correlations to which I can apply and test these theories. I argue that higher quality education leads to greater economic growth within countries while also promoting social development. Together, both economic and social development increases the opportunities within a country, while improving the people’s ability to take advantage of those opportunities.

Stephanie Cabe: James Madison University
Department of History
The Iran-Contra Affair: The Reagan Administration’s Circumvention of the Law
My research paper analyzes the scope of the Iran-Contra affair by delving into the illicit activities that occurred. It provides information on the participants who were most culpable in crafting and implementing the covert activities that transpired both in the United States and abroad in Iran and Nicaragua. It presents a comprehensive depiction and timeline of events; first by showing how the Reagan administration was dedicated to thwarting the spread of communism. The White House’s preoccupation with their anti-Soviet agenda led to the arming of the Contras in Nicaragua in order to overthrow the Communist leaning Sandinistas. The Soviet threat in Iran precipitated the administration’s desire for a relationship with so-called moderates there; and arms sales to Iran were evident arms for hostages transactions; though largely unsuccessful. The actions taken and foreign policy employed not only directly violated Congress’ Boland Amendments but also were blatantly unlawful.

A Joo Kim: Sweet Briar College
Department of Government/International Affairs
Finding Ideal Pathways towards Successful Reunification of Korea
The outbreak of the Korean War in 1950 divided Korea into North and South and it continues to be the only divided country left in the world. Although there have been many attempts to bring North and South Korea together, in recent years, they have fallen to a status where it is now even harder to bring the two sides to a negotiation table. This project carries out in-depth case studies on the unification of Germany, Yemen and Vietnam to compare their experience with reunification. I will derive characteristics and processes that make a smooth and successful reunification more likely. By studying political and economic situations in Korea and analyzing and comparing the data with the previous three cases, this project attempts to deduce an ideal process for North and South Korea to go through for a successful reunification.

Session IX 11:00 AM – 12:30 PM
Aliya Headley: Randolph-Macon College
Department of English
The Challenges of Translating Philippe de Mézières’ “Le Miroir des Dames Mariées”
This presentation discusses the challenges of translating into modern idiomatic English a fourteenth-century text of the Griselda story. The Griselda story was extremely popular in the 14th century told by renowned authors such as Boccaccio, Petrarch, and Geoffrey Chaucer. The main challenge of this project was working with medieval French, which poses difficulties to the translator even with knowledge of contemporary French, to create a coherent modern idiomatic English text. This presentation will include a discussion of the translation process with examples followed by an in-depth view of four challenges faced by the translator: lack of standardized spelling, the changed lexicon
from the 14th century, the difficulty of capturing French ideas with specific English phrases, and translator’s license. To conclude, it will highlight the importance of Philippe’s text and the need for an English translation.

Kristin Zimmer: Mary Baldwin College
Department of Spanish
The Effects of Fukú and Zafa Derived from *The Brief Wondrous Life of Oscar Wao* by Junot Diaz
The curse fúku americanus is a recurring theme in “The Brief Wondrous Life of Oscar Wao” by Junot Diaz. This terrible curse is deeply rooted in Oscar de León, otherwise known as Oscar Wao’s life. This curse is brought upon him and his family by Rafael Leónidas Trujillo Monlina, a malevolent Dominican dictator, who has encounters with several of Oscar’s family members. Fukú and zafa represent the struggles that numerous immigrant families encounter when they leave their homeland, and can be linked to the conflicts with oppression and assimilation that they may face. The paper contains a brief summary of the story of Oscar and his family, the origin of the curse and counter curse, background information about Rafael Leónidas Trujillo Monlina, how the curse and Trujillo are involved in lives of Oscar and his family members, and how fukú and zafa are present in the lives of many immigrants.

Anatherese Lundblom: Randolph-Macon College
Department of English
From Childe Harold to Batman: A Look at how Society and Relationships Shape the Byronic Hero
The Byronic hero is a character type that we all know. He’s dark and mysterious, ruggedly handsome with smoldering eyes that tempt even the most pure of heart. He is the hero with a tragic past and emotional baggage. More significantly, he is the hero who questions society’s rules and regulations. He sees the gray areas in society and these make him wonder what is good and bad and what is necessary. My research focuses on both the Byronic hero’s relationship with society and his personal relationships, specifically looking at how his traumatic past shapes his sense of justice and his interactions with others. I look at classical Byronic heroes such as Childe Harold, Mr. Rochester and Heathcliff and also modern day incarnations such as Batman.

Caden John Campbell: Sweet Briar College
Department of English
Gender Instability and the Monstrosity of the Independent S/He
The image of the witch in Renaissance text can be seen to reflect social anxieties surrounding the inadequate execution of the binary gender roles of the time, and more specifically the switching back and forth between masculine and feminine roles, a concept I have termed as gender instability. My research applies Judith Butler’s theory on gender performativity and J.J. Cohen’s and Dana Oswald’s theories on monstrosity through a close reading of William Shakespeare’s *Macbeth*, Thomas Middleton’s *The Witch of Edmonton*, John Marston’s *The Tragedy of Sophonisba*, and Thomas Heywood’s *The Late Lancashire Witches*. In using these theories this research identifies the witch’s gender instability and the gender instability of those who accuse and prosecute the witch in literary and historical text and ultimately shows that the monstrosity of gender instability does not exist within the gender binary system, instead the gender binary system exists within a monstrous one.

Shuyan Zhan: Randolph-Macon College
Department of English
The Ghosts in Maxine Hong Kingston’s Memoirs *The Woman Warrior* and *China Men*
This paper is dedicated to a comprehensive review of the cultural function of the concept of “ghost” in Chinese American writer Maxine Hong Kingston’s two books: *The Woman Warrior: Memoirs of a Girlhood Among Ghosts* and *China Men*. The paper shows how Kingston’s ghost stories help to reflect the struggle of Chinese American immigrants and to give a glimpse of Chinese culture. It is based on a thorough research of current essays and critics about the two books. Furthermore, it pushes a textual and cultural background examination. This paper consists of three major parts: background information about Chinese culture, a general review of the controversies about Maxine Hong Kingston’s work related to the topic of “ghost” and a close examination and possible interpretation of ghost stories in her two books.

Sarah Perkins: Roanoke College
Department/s of English/Spanish
The Rebirth of a Nation: The End of Traditional Japan and Coming of Progress as seen in Soseki’s *Kokoro* and Murakami’s *Norwegian Wood*
The Meiji era thrust Japan into modernity, pressuring the Japanese people to rapidly transition away from a society deeply rooted in tradition. The Japanese strove to construct a new national identity that blended traditional and modern values. These efforts left them feeling unmoored: nostalgic for the past and unsure of the future, the Japanese stood warily at the precipice of change. The experiences of World War II exacerbated these feelings. We can trace Japan’s conflicting attitudes about identity, tradition, and change in two key works that reflect the struggles: Kokoro by Natsume Soseki and Norwegian Wood by Harumi Murakami. Book-ending the twentieth century, these novels express the end of Japan’s traditional era and the emergence of its new era while revealing uncertainty about the future. Kokoro and Norwegian Wood thus provide a lens through which readers are able to understand the profound sense of loss that characterizes Japan’s twentieth century.

Session X  2:00 – 3:15 PM
Jane Lightfoot: James Madison University
Department of History
Let Them Eat Cake and Order Room Service
The palace of Versailles has been a symbol of patrimony in France since it’s construction. Louis the XIV became the Sun King at the palace and Marie Antoinette’s perfumed court roam the halls. Now attracting over three million visitors a year, the palace has become more of a tourist attraction and less of a historical site. The main events showing this change include the modern art exhibits in the Hall of Mirrors, Sofia Coppola’s movie – which she calls an “emotional history” – concerning Marie Antoinette, and the five star hotel placed in a historical building on the palace grounds. Newspaper articles show the public reaction to the commercialization of the historical site. The French have acted poorly to this transition, but the curators of the museum and the tourists flocking to the Hall of Mirrors think this is a change for the better, and possibly a natural result of globalization.

Lydia Ethridge: Sweet Briar College
Department of History
Reconsidering Richelieu: "The Cardinal of La Rochelle"?
My research examines the domestic religious policies of Cardinal Richelieu, first Chief Minister of France (1624-1642), during the earliest part of his political career, 1615-1629. In particular, this research focuses on Richelieu’s dealings with the armed and powerful religious faction of the Protestant Huguenots in traditionally Roman Catholic France. The infamous Siege of La Rochelle (1627-1628) serves as the centerpiece of this analysis. Though long considered by scholars to be more villain than hero, my research reconsiders this view and reexamines Richelieu’s power and politics through careful analysis of his letters, papers of state, Political Testament, and the Articles of Agreement signed at the rendition of La Rochelle.

Chelsea Henderson: James Madison University
Department of History
Puritans and Witches: Conflict and Compromise at Salem
Salem, Massachusetts saw the largest outbreak of witchcraft in America. The witchcraft accusations led to several arrests and executions of innocent men and women. This paper explores the reasons as to why the Salem Witch Trials occurred. It examines the Puritan beliefs in the devil and witchcraft, their views on gender, and the economic issues that were very much a part of Puritan life and shaped the way they thought. It also examines the most prominent trials in order to provide an understanding of the moment. The Puritan belief in the devil and witchcraft inclined the people of Salem to willingly accept the accusations made by young girls that led to a series of trials, where certain individuals were singled out and convicted, because of a mixture of economic strife, attention, and gender. Original court documents, letters, and monographs are the primary sources analyzed.

Caitlin Playle: Sweet Briar College
Department of History
Nessie: Stories of the Scottish Highlands from the Vita Columbae
In 563 AD, St. Columba crossed from Ireland to Iona. There he would become known as the “apostle of Scotland,” encounter the Loch Ness Monster, and establish one of the greatest monastic families in the British Isles. His story is chronicled in Adomnan’sLife of Saint Columba (Schaffhausen Stadtbibliothek Gen. 1 manuscript), one of the oldest Scottish manuscripts in existence. This paper provides a historical context for the stories about Columba’s experiences in Pictland, which showcase the interaction of him and his followers with the pagan King Bridei and the wizard Broichan. These interactions reveal a very different approach to the process of Christianization by the Irish
monks than was used by their continental counterparts. These stories give a rare glimpse into missionizing efforts in the far-flung fringe of the early medieval west and spawned the myth of Columba as the “apostle to the Scots.”

Xavier Macy: James Madison University
Department of History
What They Carried in Their Scars: African Rice Knowledge Preserved in South Carolina
Long before cotton was king, rice was the essential cash crop that brought South Carolinian plantation owners vast wealth, drove the colony’s economy, and ultimately becoming a major crop in international trade. But the question of where the origins of the immensely important cereal came from is a long debated subject, that’s answer holds colossal importance to the bigger question of African and African-American agency, and cultural survivals. Through close examination, analysis, and comparison of cultivation processes, Cross-Atlantic similarities, and genetic rice germination data, the only legitimate answer, is that Africans brought with them extensive skill and knowledge of rice cultivation, and implemented this in the Americas, preserving a large cultural trait, while simultaneously creating an important and widespread rice economy.

Poster Session

1. Katherine Macklin: Sweet Briar College
Department of Environmental Studies
Effectiveness of Best Management Practices on Cattle Farms in Central Virginia
Best management practices (BMPs) in agriculture include structural and managerial practices intended to restrict cattle access to streams. In this study, the effectiveness of cattle exclosures was evaluated by comparing stream channel morphology, aquatic habitat and water quality on three beef cattle farms with BMPs and two without. Two nearby non-pasture reaches were also evaluated for comparison. All study sites are located in central Amherst County, Virginia, in the Graham Creek and Muddy Creek watersheds. On average, stream reaches with BMPs exhibited lower concentrations of total nitrogen and phosphorus, higher entrenchment ratios, lower bankfull width/depth ratios, and higher aquatic habitat assessment scores than reaches without BMPs. Turbidity, bank angle, and total coliform and E. coli bacterial counts did not demonstrate consistent differences between sites with and without BMPs. Results indicate that BMPs, especially older installations, are moderately effective at mitigating cattle impact on streams.

2. Madhura Chitnavis: Roanoke College
Department of Biology
Characterizing Ty3-gypsy Elements in the Basidiomycete Fungus, Coprinopsis cinerea
The research objective was to further characterize Ty3-gypsy LTR retrotransposons in Coprinopsis cinerea in terms of structure and assess functionality. Out of the 44 full-length gypsy elements that have been identified in Coprinopsis, the 31 longest elements were chosen and evaluated on functionality using the following criteria: element length, LTR length, LTR similarity, and expression data. Using the C. cinereus annotation website and IGV software, gypsy elements were analyzed for potential functionality and given a rating from 1-5 with 1 being possibly functional and 5 being unlikely to be functional. The elements with the highest ratings were characterized internally via comparing Coprinopsis sequence data to other fungal genomes using BLAST software. The elements and their exons and proteins were subsequently aligned using the program, Sequencher. It was concluded that the Ty3-gypsy elements of the Coprinopsis genome were unlikely to be active due to the genome being heavily methylated and mutated internally.

3. Kendra Boyd: Roanoke College
Department of Biology
Characterization of hAT Transposons in the Coprinopsis cinerea Genome
Coprinopsis cinerea genome contains a variety of repetitive elements. One subcategory of repetitive elements is DNA transposons that operate using a cut-and-paste mechanism. My research focuses on characterizing the hAT
family of DNA transposons. There are a total of 9 hAT elements that have been identified. To study the functionality of this family of transposons, I have selected the best candidate, hAT 1, for analysis based on transposon structure and expression. Analyses on areas including TIRs, methylation, and dimerization domains have provided insight about the activity of hAT 1. Lastly, I have performed PCR reactions altering conditions such as primer combinations, DNA concentration, annealing temperatures and magnesium concentration to find the optimal conditions to amplify hAT 1.

4.
Brandon K. Fox: Hampden-Sydney College
Department of Biology
Epidemiological Modeling via the Conjugation Phenomena: Breaking Ground and the Initial Development of the Infection Plasmid
Co-author/s: Dr. Dale Beach and Dr. Mike Wolyniak
Abstract (150 words maximum): The ultimate goal of our project is to develop a visual representation of the outbreak of a disease, its spread through a population, and modes of action which serve as a means of defense against this infection. In a sense, we are creating an epidemiological model. Our model encompasses two separate plasmids: the first physically representing infected cell, through the production of red fluorescent protein, while also encompassing a means to degrade the second plasmid, the healthy cells, which are represented through the production of green fluorescent protein and interact with infected cells by degrading red fluorescent protein and producing cyan fluorescent protein to represent dead cells which no longer interact in our model. We will also demonstrate the BioBrick system and our method of plasmid assembly.

5.
Francis Polakiewicz: Hampden-Sydney College
Department of Biology
The Effects of Environmental Stressors and the Pathogen Ranavirus on Survival and Health of Juvenile Freshwater Turtles
Co-author/s: Rachel Goodman Ph.D., Debra Miller, D.V.M., Ph.D.
Abstract (150 words maximum): Pathogens within the genus Ranavirus, are carried by and can be fatal to ectotherms (4). Ranavirus infection is not always lethal for host species. Decreased immunity in populations has been hypothesized to be caused by exposure to anthropogenic stressors (4,2). Because exposure to the virus does not always cause mortality, this may explain why some populations exposed to ranavirus remain asymptomatic, while others experience massive die-offs (5). To date, all research on the interaction between synthetic chemical stressors and vulnerability to ranaviruses has been focused on fish and amphibians while excluding reptiles. Observation of the effects on reptilian immune function in the presence of herbicides is important to show how wildlife populations may be affected by pathogens in mildly polluted watersheds of central Virginia. In this study, the Red Eared Slider Turtle (Trachemys scripta elegans) was used to investigate the growth response of aquatic reptiles to ranavirus and herbicide exposure.

6.
Kyle S. Bonifer and Crystal Manning: James Madison University
Department of Biology
Anti- Microbial Analysis of a Novel Series of Amphiphiles
Throughout the history of antibiotic use, drug resistance has made the development of novel and potent drugs a necessity. Our research is centered on the development of novel amphiphiles comprised of non-polar hydrocarbon tails varying in length, and multiple polar head groups. These series of amphiphiles were assayed for antimicrobial effectiveness against Staphylococcus aureus, Enterococcus faecalis, Pseudomonas aeruginosa, and Escherichia coli by performing standardized minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) assays. MIC and MBC values for these amphiphiles were in the low micromolar range. Specifically, the compound M-P,12,12 (meta-pyridine, 12 carbon chain, 12 carbon chain) was most effective for all strains tested, with MIC and MBC values of 2μM for S. aureus, 2μM for E. faecalis, 4μM for E. coli, and 8μM for P. aeruginosa. In addition to being the most effective compound, the MIC values of M-P,12,12 were less than control compounds DTAB, CTAB, and Lysol.
7.
Alan Fish: Hampden-Sydney College
Department of Biology
Determination of the Effect of the brr6 Gene on Mitosis in *Saccharomyces cerevisiae*
Co-author/s: Christian Lehman
Brr6 is a 594 base pair gene that is located on chromosome VII in the fungal species Saccharomyces cerevisiae. The gene codes for an essential structural protein in nuclear pore complexes (NPCs) within each yeast cell’s nuclear envelope. Previous research concerning Brr6 has revealed that deletion of the entire gene results in a lethal phenotype in which the cell cannot survive or reproduce. However, if the gene is not deleted, but only mutated, the resulting phenotype can still survive and reproduce. While the mutated S. cerevisiae cells retain their reproductive capacity, they exhibit a hindered reproductive rate, and evident difficulty in successfully separating during telophase. The cell membranes of the mutants successfully divide, but their chitin cell walls often remain conjoined.

8.
Casey Wojtera: Roanoke College
Department of Chemistry
Implementation of a Yeast Expression System
The purpose of this research was to successfully express 5,10-methylenetetrahydrofolate synthetase, or MTHFS, from Mycoplasma pneumoniae using a yeast expression system. MTHFS from M. pneumoniae has been extensively expressed, studied and has demonstrated activity. This MTHFS gene was used as a control to test the efficacy of a yeast expression system. If working properly, the system should make active MTHFS. The kit system also provides an additional positive control that should express maltose-binding protein (MBP) when the system works. Based on transformation yields, the DNA appears to have been incorporated into the cell properly. However, no evidence of MTHFS was identified after several attempts of cellular expression. MBP was expressed once, but was not expressed consistently. Future attempts at expression will address hypothesized causes for the lack of both MTHFS expression and consistent MBP expression.

9.
Michelle Pasier: Roanoke College
Department of Chemistry
Characterization of an IMP Cyclohydrolase in *Halofex volcanii*
Purine biosynthesis is a fundamental metabolic pathway. Unlike bacteria and eukaryotes, the domain Archaea do not have common enzymes for purine biosynthesis, and those they do possess are not necessarily homologous to non-archaeal purine biosynthesis enzymes. The final reaction of purine biosynthesis is the conversion of FAICAR to IMP, catalyzed by an IMP cyclohydrolase in Halofex volcanii, a halophilic archaeon. Halofex volcanii’s genome is sequenced, but the characterization of its genes is not completed. The gene HVO_0011 encodes an amino acid sequence with a high similarity to TK0430, an archaeal IMP cyclohydrolase. The gene HVO_0011 was inserted into E. coli cells in the vector pMal-c5e. The produced protein was extracted by sonication. To test for IMP cyclohydrolase activity, the crude protein encoded by HVO_0011 was reacted with FAICAR. The production of IMP from FAICAR in the protein encoded by HVO_0011’s presence was confirmed from these assays using HPLC chromatography.

10.
Noah Reeve Aguayo: Roanoke College
Department of Chemistry
Investigations of PurP Enzyme Activity of purP Genes from *Methanocaldococcus jannaschii* and *Thermococcus kodakarensis*
Purine biosynthetic pathways in Archaea are interesting pathways to investigate because of the unique conditions under which these organisms can thrive. We have investigated predicted PurP enzymes from the purP genes of the organisms Methanocaldococcus jannaschii (MJ0136) and Thermococcus kodakarensis (TK0203). This research focuses on the conversion of 5-aminoimidazole-4-carboxamide-1-β-D-ribofuranosyl 5’-monophosphate (ZMP) to 5-formaminoimidazole-4-carboxamide-1-β-D-ribofuranosyl 5’-monophosphate (FAICAR). PurP enzymes, in the presence of ATP and formate, will convert the aryl amine group on ZMP to an amide, giving the product FAICAR. We want to investigate the complementation and activity of the predicted PurP enzymes from the genes TK0203.
and MJ0136. In this investigation we were unable to produce soluble protein. For the future we want to adjust the techniques and conditions used to produce soluble protein.

11. Jonathan Perkins: Roanoke College
Department of Chemistry

*Ethers and Fluoro-Ethers from Pentafluorophenyl-Substituted Cyclopentadienes*

1,2,3,4-Tetrakis(pentafluorophenyl)cyclopentadiene and 1,2,4-tris(pentafluorophenyl) cyclopentadiene were reacted with fluorous and non-fluorous alcohols of differing chain length to produce tetrafluorophenyl ethers and fluoroethers. The reaction of 1,2,3,4-tetrakis (pentafluorophenyl)cyclopentadiene with 2-methoxycethanol (8 equivalents) and sodium hydride (100 equivalents) produced the tetra-substituted product in a <10% yield. The reaction of 1,2,4-tris(pentafluorophenyl)cyclopentadiene with 2,2,3,3,4,4,4-heptafluorobutanol (6equivalents) and sodium hydride (50 equivalents) produced the di-substituted product in a 51% yield and the tri-substituted product in a 3% yield. The reaction of 1,2,4-tris(pentafluorophenyl)cyclopentadiene with 2-methoxycethanol (6 equivalents) and sodium hydride (50 equivalents) produced the tri-substituted product in a 10% yield. All products were purified using silica gel flash chromatography and characterized by 19F and 1H nuclear magnetic resonance spectroscopy. Calculations were performed on the 1,2,4-tris(pentafluorophenyl)cyclopentadienyl anion to determine equilibrium geometry and charge density. Calculations were done using Gaussian 03 Revision E.01 using B3LYP/6-31G*.

12. Maura Belanger: Roanoke College
Department of Chemistry

*Characterization of purF Genes Sulfolobus solfataricus*

Purines are important in cells as both DNA bases (adenine and guanine) as well as energy (ATP, GTP). The first step in purine biosynthesis converts PP1-ribos-P (PPRP) and glutamine into β-P-ribosylamine (PRA) and glutamate. In Sulfolobus solfataricus, a well characterized archaeon, the gene that codes for the enzyme that catalyzes this reaction (the PurF enzyme) is SSO0632 while the next gene, SSO0633, has an unknown function. To properly clone and characterize these genes certain steps must be taken. These steps include: primer design, PCR, enzyme digests, bacterial transformation, and sequencing. All of these steps were completed and showed the proper results to indicate both SSO0632 and SSO0633 were successfully cloned. One percent agarose gels showed the success of PCR. Transformation was shown to be effective through growth of antibacterial resistant colonies on solid media plates. Sequencing results showed that the entire gene had been cloned and inserted into the plasmid.

13. Alexis Pham and Kylie Woodrum: Christopher Newport University
Department of Psychology

*Role of Theory of Mind and Behavioral Cues in Young Children’s Trait Attributions*

The present study examined children’s usage of behavioral and affective cues and the role of theory of mind understanding in preschoolers’ trait attributions. Seventy-two 3-to-5 year olds competed a language assessment, a set of theory of mind tasks, and a trait attribution task with two story sets over two sessions. The first story set included five episodes of a child performing in a helpful manner and the second set included five episodes of a child performing in an unhelpful manner. Participants viewed photos of facial expressions that were either consistent or inconsistent with the manners. Participants rated the characters’ qualities on a 5-point Likert scale. Based upon the results, older children are better suited to make trait attributions based upon behavior. The results suggested theory of mind understanding, rather than language, explains differences in performance. The data indicate preschool aged children do not make trait attributions based upon facial cues.

14. Hayley Peterson and Thomas Bailey: Christopher Newport University
Department of Psychology

*Drawing Beyond Art: The Impact of Art & Music on Creativity*

The purpose of this study was to determine the impact of art and music training on children’s creativity levels using the Figural version of Torrance Test of Creative Thinking (TTCT). A total of 55 children between the ages of five and eight enrolled in an after school music and art program in Benin, West Africa, completed both the pre- and post-tests of the TTCT-Figural. Participants completed three 10-minute activities in a 30-minute session. These tests were
then scored on five domains (fluency, originality, abstractness of titles, elaboration, resistance to premature closure) with other factors determining if a participant’s tests are scored. Using a repeated measure ANOVA, it was determined that the art and music training had a significant impact on TTCT scores. These results show that the program has been demonstrated to be a positive influence on fostering higher order thinking skills such as creativity (Anderson & Krathwohl, 2001).

15. Jennifer M. Blaney: Roanoke College
Department of Fine Arts
Developing a Measure of Climate for Learning: An Ongoing Process Informing Change
This project develops a measure of climate for learning at Roanoke College and other small liberal arts colleges. This measure determines the perceived supports, rewards, and expectations of learning from the student perspective. Measuring the climate for learning can be used to quantify strengths and weaknesses and promote incremental and large-scale change. Additionally, developing a climate measure can be an informative process for an institution. This project details the process of developing a measure of climate for learning that is tailored to meet the needs of Roanoke College and how that process can be used to inform change.

16. Dominique Rose: Randolph College
Department of Education
Pedagogical Implications for Quality Teacher Preparation: Linking Practice and Theory
This research study will examine the disconnect between the knowledge and skills acquired during the college teacher preparation program by students enrolled in practicum courses, intern teaching placements, as well as graduates’ experiences in their first three years of teaching. During the fall semester 2011, education faculty members talked with recent alumnae/alumni and current students in the M.A.T. program to collect information for our TEAC accreditation annual report. Following these discussions, we realized the need for a more systematic approach in determining ways to review and to improve our program objectives. The summer research program will allow us to read current research on this topic, expand the scope of this study to include more RC candidates, and to design survey instruments for candidates, clinical faculty, and college supervisors. In addition, we will be able to collect information about program effectiveness through the research process.

17. Huong Doan and Pujan Shrestha: Randolph College
Department: Summer Research Program
Science and Math Links: Inquiry-based Learning
Co-author/s: Pujan Shrestha
People have been looking at science subjects and math with biases and stereotypes. Scientists are often portrayed as unattractive, socially awkward and lonely. Thus, there has been a decrease in interests towards science as a subject and as a career. In order to improve students’ perception towards science and their abilities to learn science, we are introducing inquiry-based and hands-on teaching methods to teachers and students. Through inquiry-based method, we encourage that the students try to figure out an answer to a problem by themselves, and that the process of finding the answers is more important than the end product. In addition, through hands-on teaching method, students have more opportunities to conduct experiments, finding samples and learning on their own. We introduced these methods through a Teaching Institute at Randolph College for teachers and a 5-day workshop at Jubilee Center for children.

18. Turina Lewis: Sweet Briar College
Department of Chemistry
Effectiveness of Professional Development
Does using an inquiry approach to teaching science and math help improve students’ test scores on the Virginia Standards of Learning tests? Inquiry approaches to teaching are known to increase student engagement and may be correlated with retention. The Summary Report by Question (SRBQ) data was collected for the students of teacher participants in a year-long professional development project focused on inquiry instruction. The SOL test questions were categorized by relevance to the science and math content of the inquiry lessons taught by the teachers. The
SRBQ data was analyzed to determine if there was a significant correlation between questions that were highly relevant to the inquiry lessons and the number of students answering those questions correctly. SRBQ data from 2010 (before using inquiry) served as a control data set to 2011. Research in Professional Development can help us make better decisions about effective strategies to improve student learning.

19. 
Ebony Tyler: Christopher Newport University  
Department of Psychology  
Female Interest Loss in the Area of Science  
Co-author/s: Alexa George, Krystyn Rizzo, Katie Mitton, Erin Rolaf, Christina Martin, Catherine Barton, Starr Eshleman and Dana Brookover  
Research has shown that girls start to lose interest in science between the ages of 9 and 14, and, consequently, few later choose to pursue advanced degrees and careers in science (Steinke, 1997). Analysis of programs from an actual science event, Jefferson Lab Science Bowl, was performed to see if the predominant participants would be males. Program supplements for middle school and high school science bowl participants were evaluated to determine the gender of participants. 98 middle schools (n=32) and high schools (n=66) participated in the science bowl. In the middle school science bowl, 39% of participants were female and 61% of participants were male. In the high school science bowl, 32.1% of participants were female and 67.9% of participants were male. A chi-square analysis showed a statistically significant percentage decrease in female participants from middle school to high school. Further research needs to be completed to understand this relationship.

20. 
Michelle Best: Christopher Newport University  
Department of Psychology  
Gender Differences of Emotion in the Work Environment: A Literature Review  
Work environments appear to effect the emotions of men and women differently (Woods, 2010). This literature review will examine gender differences on emotional states in the work environment. Studies have shown that women tend to have more emotional fluctuations than men in the work place (Lively, 2005). In addition, women are considered unreasonable and unstable, whereas men are considered as firm in their leadership when acting on their emotions (Knights, et al, 2008). Future research should consider perceptions of emotion display between men and women, and how these perceptions influence the work environment.

21. 
Vanessa Quesenberry: Radford University  
Department of Communication  
Gender Roles of Women Presented by Hollywood  
The objective of this project is to review the changes in the female role, as portrayed in movies. This project specifically examines movies in which the main female character is teamed with a horse. This goal is achieved by doing a content analysis on four movies representing roughly about every fifteen years since 1945. This project uses communication theories to explain the changing role or unchanging role of women. New information in this area will be compared with existing information on the changing roles of women as revealed through movies.

22. 
Geneva Polser: Christopher Newport University  
Department of Neuroscience  
Face Recognition and Autism Spectrum Disorder  
Co-author/s: Sarah Adams, Alie Plott, Cory Katona, Paige Daniels, Katherine Murphy and Natalie DeSanctis  
Individuals with Autism Spectrum Disorder (ASD) show impaired recognition of faces and facial expressions. Face recognition deficits are believed to result from a lack of configural/holistic processing and a shift toward feature-based recognition strategies. Using a face recognition paradigm that controls for individual differences in task difficulty, we show that high ASD individuals, in fact, use configurial information more than neurotypical individuals, utilizing nose- and mouth-related distances more than other face dimensions. These results suggest that high ASD individuals will outperform neurotypical observers when recognizing faces in which nose- and mouth-related distances are diagnostic of identity or facial expression. In addition, the face recognition paradigm we show that low ASD individuals utilize eye shape, eye-nose and nose-mouth distance more than high ASD individuals.
These results suggest that low ASD individuals will outperform high ASD individuals when recognizing faces in which eye shape and eye-related distances are essential to recognition.

23. Christine Smiley: Christopher Newport University
Department of Psychology
Occurrence and its Effects on Alcohol Consumption: A Literature Review
Many occupations may require individuals to work extensive hours for insufficient pay, often resulting in high stress levels and dissatisfaction. Having such demanding jobs can play a significant role in alcohol consumption (Macdonald et al., 1999). This literature review will examine occupation-related variables and their relation to alcohol consumption. Studies have found that occupations characterized by high levels of stress, mobility, and task independence were more likely to be associated with alcoholism (Zhang & Snizek, 2003). Additionally, research suggests other occupation-related contributors such as job security, income, working conditions, and skills also influence alcohol consumption (Zhang & Snizek, 2003). Implications and directions for future research are also discussed.

24. Dana J. Burns: Christopher Newport University
Department of Psychology and Neuroscience
Cognitive Performance Following Emotional Stress from Simulated Combat
Co-authors: Elizabeth Vignaroli; Emily Aqualina; Noah Schwartz; Ashley DeMoss; Dustin Harrel; Nicholas Sherwood
Warfighters make life-or-death decisions in the face of significant physical and emotional stress. Previous research has demonstrated that both physical and psychological factors in military training settings significantly impact cognition (Vrijkotte, Valk, Veenstra, & Visser; Harris, Hancock, & Harris, 2005). In contrast, cognitive processing has shown to improve with the handling of a weapon, due to an increase in testosterone levels (Klinesmith, Kasser, & McAndrew, 2006; Newman & Sellers, 2005). The current study aims to explore this contradiction by examining the effects of combat-like stress on perceptual and cognitive performance in a controlled laboratory setting that does not include physical stress or fatigue. Our goal is to aid in the eventual creation of more accurate training and assessment tools concerning stress and cognition for use in the military and other relevant fields.

25. Ellena Sempeles: Christopher Newport University
Department of Psychology
Love as Medicine: The Effects of Love on Health Outcomes
The theory of love has been shown to influence many aspects of health. Research has displayed the concept of love describes many beneficial and detrimental effects on health which mediate biological, psychological, and psychosocial factors. Evidence indicates that the presence of love in one’s life, through (a) parental figures, (b) intimate and friendly relationships, (c) religion, and (d) pets improves physical and mental health. Furthermore, the absence of love, through (a) break-ups, (b) divorce, (c) widowhood, and (d) isolation, has been correlated to damaging health effects of various bodily systems. The purpose of the literature review is to render a theoretical model to capture the complexity of variables involved in the health effects of love. Developmental and evolutionary approaches will be used to construct this research.

26. Allison Stafford and Gabriele Martin: Christopher Newport University
Department of Psychology
The Social-Psychological Implications of Attraction to U.S. Voters during the 2012 Presidential Election
The paper investigates the impact of an individual’s preferences and perceptions on their voting behavior. Variables such as (a) candidate options, (b) political climate, and (c) personal factors may influence whether or not an individual chooses to vote. The Voter Behavior Model (VBM) expounded in this paper relates personal variables such as (a) demographics (b) personality (c) values (d) religiosity and (e) political views to assessments of a candidate. The personal characteristics of an individual will be compared to their perceptions of the candidate to determine what makes a candidate preferable. This idea is drawn from social psychological theories of attraction, which suggest that an individual will be attracted to a person that either shares common attributes or displays
characteristics desired in one’s self. A future study will develop a framework for demonstrating the relation between personal variables, perceptions of the candidates, and voting outcomes.

27. Emily Schulz: Christopher Newport University
Department of Psychology
Perceptual Manipulation of the Reptilian Brain: Does Consumer Marketing Sell or Seduce?
Co-author/s: Jade Austin
The purpose of this paper is to construct a preliminary theoretical model to better understand the brain’s responses to product advertising. Neuromarketers have discovered that 90% of purchases are made subconsciously, due to brand perception, emotion elicitation, and other subconscious triggers. The innermost portion of the brain has no concept of logic, but operates purely on primitive drive. It makes choices based on survival rate, and for years advertisers have applied strategic design elements which stimulate these instincts. Therefore, the framework to be investigated is referred to as the Manipulation of the Reptilian Brain Theory (MRBT), exploring multiple aspects of subliminal appeal and thus, the decision-making process.

28. Jeffrey Fauber: Christopher Newport University
Department of Psychology
Cigarettes vs. Marijuana: A Comparison of Smoking and its Effect on Physical and Mental Health
The purpose of the study is to compare the differences between smoking tobacco and smoking marijuana. Many studies exist by breaking down the negative outcomes of smoking either substance. Critically analyzing both forms of smoking will be used to clear many of the previously conceived and highly controversial effects of smoking either substance. The principle aim of this work is to focus and conceptually model the network of factors resulting in physiological and psychological effects of marijuana and/or cigarette smoking. This approach is likely to benefit the general community, health educators, other researchers, as well as policy makers in order to enact changes to how these substances are understood by the public.

29. William Shelton: Christopher Newport University
Department of Psychology
Types of NDEs that Involve Animals
A Near Death Experience (NDE) is defined as an experience in which an individual has died and has been resuscitated. During a NDE records report that the individual has a dream like experience of a dark tunnel, a life review, and being in the presence of strange beings of light (Agrillo, 2011). Studies show that when individuals experiencing a NDE are pronounced clinically dead, some of them experience being greeted on the other side by already deceased loved ones and sometimes their already deceased pets (Atwater, 1994). This literature review focuses on what types of NDEs that have animals within them. Future research should focus specifically on what types of NDEs tend to include animals, where and when the animals appear in the NDE, and characteristics of people who have NDEs.

30. Kyle Scott and Prithika Selvavel: Christopher Newport University
Department of Psychology
Schadenfreude: A Measure of Enjoying Another’s Misfortune
Schadenfreude is defined as exhibiting pleasure from another person’s misfortune (Smith, 2009). According to social comparison theory (Festinger, 1954), individuals are constantly comparing themselves to others in either an upward (e.g., better off) or downward (e.g., worse off) trajectory. Using this theory to explain Schadenfreude, individuals may be prone to Schadenfreude because witnessing another person’s misfortune increases one’s own feeling of self-worth. The purpose of this study was to develop a paper and pencil questionnaire of Schadenfreude. Based on the literature we generated four sub-component of Schadenfreude: Physical, Emotional, Privilege, Equity, and Justice. Implications and discussions will be addressed.
31. Ryan Trachtenberg: Christopher Newport University  
Department of Psychology  
The Influence of Motivation, Ego, and Emotion on Athlete Enjoyment and Performance: A Literature Review  
Many athletes claim motivation, ego, and emotion directly affect individual level of enjoyment and performance. Previous research shows sport performance decreasing as anxiety in a certain situation/task increases (Causer, Holmes, & Smith, 2011). This literature review will help explain the influence that common sport behaviors (motivation, ego, and emotion) have on athlete enjoyment and performance. Studies also show how parental pressure (mentors, teachers, instructors, coaches, etc.) positively correlate with an athlete’s ego level (O’Rourke, Smith, Smoll, & Cumming, 2011). In addition to these findings, research suggests that emotion (e.g. anger) and motivation have a strong relationship with individual athlete performance (Ruiz & Hanin, 2011). Although past studies provide moderate support that enjoyment and performance are positively correlated to motivation, ego, and emotion, future research should examine behavior patterns in practice versus behavior during actual competition.

32. Breanna Wright: Roanoke College  
Department of Psychology  
The Effect of Gender on Facebook Induced Jealousy in Romantic Relationships  
Co-author/s: Molly Howser, Kristen Lipsett, Michael Hudson, Laura Pope, and Ian Robinson  
Recent research suggests Facebook use may be changing the nature of romantic relationships in young adults (Muise, Christofides, & Desmaris, 2009). The current study examined the relationship between Facebook induced jealousy and gender. Differences in jealousy due to Facebook related behaviors were revealed between genders. Implications for how Facebook use may impact interpersonal relationships will be explored.

33. Jessica Gladfelter: Roanoke College  
Department of Psychology  
An Examination of Texting in Friendships  
Co-author/s: Amanda Newman  
A significant part of the college experience is forming and maintaining friendships (Pittman & Richmond, 2008). As texting is a primary form of communication among this age group (Zickuhr, 2011), it is important to examine how its use impacts intimacy in friendships (Thurlow, 2003). In the current study, 34 participants kept a journal of their text message conversations with their best friend for two weeks. They also provided general information about their relationship and completed intimacy surveys. While texting frequency was not related to self-reported intimacy, intimate displays in texting content (Knobloch, Solomon, & theiss, 2006; Van Horn et al, 1997) will be discussed.

34. Alissa Feudo: Christopher Newport University  
Department of Psychology  
Perfectionism and Overall Well-Being: A Literature Review  
Perfectionism, a multidimensional construct often associated with high achievement and self-discipline, may also have a negative impact on overall well-being (Rice & Mirzadeh, 2000). This literature review will examine the construct of perfectionism by discriminating between harmful and beneficial types of perfectionism, as well as evaluating their effects on psychological well-being. Studies have shown that individuals with higher levels of harmful perfectionism correspondingly reported higher levels of stress, lower levels of happiness, and lower life-satisfaction (Ashby et al., 2012). Additionally, harmful perfectionism may mediate problems of stress and anxiety in psychological disorders such as depression (McGrath et al., 2012). However, maintaining an adaptive (perfectionistic striving) as opposed to a maladaptive (perfectionistic concern) type of perfectionism may have beneficial effects on psychological well-being (Di Schiena et al., 2012). Further research should examine ways in which perfectionistic constructs may be modified for appropriate treatments.

35. Annie Besterman: Lynchburg College  
Department of Psychology
Social Stigma and Obsessive-Compulsive Disorder
Co-author/s: Alexis Paice, Jessica Hamel and Sarah Landis
Obsessive-Compulsive disorder is a commonly diagnosed disorder and is often difficult to treat. The perception of the mentally ill is typically negative and many mentally ill individuals are perceived as dangerous. We hypothesized that the type of behavior and the severity of the behavior would increase the level of social stigma attributed to an individual, resulting in desire for social distance and potentially complete social rejection. It is important to understand society’s attitudes towards interacting with the mentally ill in order to educate and advocate for the mentally ill.

36.
Christopher Fry: Christopher Newport University
Department of Psychology
Etiological Differences and Relation of Eating Disorders and Borderline Personality Disorder: Questions of Diagnosis and Therapy
The goal of this paper is to better understand the link between Borderline Personality Disorder (BPD) and Eating Disorders (ED). A theoretical model was created to map the conceptual links and network that reveal the natural connections between BPD and ED. For instance, factors that influence the onset of eating disorders include; (a) emotional dysregulation, (b) rejection sensitivity, and (c) obsessive compulsive behaviors. Other factors associated to BPD and ED are; low self esteem, dysmorphic body image, and cultural influences such as media and peer influence. The functional model fosters a better understanding of BPD and ED and forms a basis for future research and better therapies.

37.
Robinson Sagar: Hampden-Sydney College
Department of Physics and Astronomy
Classical Approach to Quantum Mechanical Dynamics
The purpose of this project is to investigate the possibility of describing a quantum mechanical system using classical mechanics. The Ehrenfest Theorem was applied to a model of an atomic potential to develop phase-space plots of wavefunction propagation using quantum calculations. The Euler method was used to solve first-order differential equations to classically develop phase-space plots. Our results for the eigenstates of the ground level show clear differences in phase-space plots between the classical and quantum approach. However, the last bound states show similar phase-space plots.

38.
Timothy Slesinger: Randolph College
Department of Physics
Investigating Methods of Inertial Navigation as a Tool for Mapping Complicated Human Motion during Roller Coaster Rides
Co-author/s: Kacey Meaker ‘08, Physics Ph.D. Candidate, University of California, Berkeley
Inertial navigation has long been used for measurement of position and orientation in commercial travel (boats, planes), but the systems are complicated and expensive. GPS is good for two-dimensional positioning on the surface of the Earth, but not for orientation or altitude, and GPS signals are not always available. Very recent improvements in micro-machined electromechanical systems (MEMS) have made the application of inertial techniques to individual human motion possible. We became interested in this project through our work in trying to map a roller coaster ride. In this project, we will study how well various inertial navigation techniques work versus portability and price using three different methods: accelerometers (measuring acceleration) and numerical integration, video analysis, and accelerometers corrected by gyroscopes (measuring orientation). The latter will be studied using the new technology in the iPod Touch, and will be compared to a relatively high-tech Inertial Measurement Unit made for this purpose.

39.
Tu Nguyen: Randolph College
Department of Physics
An Investigation in the Magnitude Distribution of the M5.8 Virginia Aftershock Sequence
Co-author/s: Dr. Tatiana Gilstrap
A moderate size (magnitude 5.8) earthquake rocked Virginia and multiple other states along the Eastern coast of the United States on August 23rd, 2011. The earthquake’s hypocenter was just a few miles south of Mineral, VA. It occurred near the northern border of the Central Virginia Seismic Zone (CVSZ) and is the largest recorded earthquake to have happened in this region. The seismic hazard posed by CVSZ is not well understood and an investigation in the energy released during and following the M5.8 earthquake will shed light in the seismic potential of the area. We assembled a catalog of all aftershocks and studied their magnitude distribution. Hundreds of aftershocks were detected but most with magnitudes of 2.0 or less were not reliably located and their magnitude was not determined by conventional techniques. We studied the energy characteristics of those small events with the purpose of finding their magnitudes.

40. Laura Rabbitt: Christopher Newport University
Department/s of Neuroscience and Psychology
Investigating Face Recognition Expertise Through the Convergence of Face Recognition Tests
Co-author/s: Cassady McDonald, Chelsea Rubis, and Melissa Walters
Faces are recognized in terms of the distances between features whereas objects are recognized in terms of constituent parts (Rhodes, Brake, and Atkinson, 1993). Current literature classifies face recognition performance at two extremes: prosopagnosic vs “super recognizers” (Russell and Nakayama, 2006). The current study aims to explore these extremes in more detail by measuring information utility across a broader range of face recognition abilities using two tasks, the Cambridge Face Memory Test and the Error-From-Sample Task (Duchaine & Nakayama, 2006; Schwartz & Chang, 2008). These two tasks include recognizing a face among distractors, noise, and across controlled variations in distance between face features. The combined task aims to allow researchers to quantify face recognition ability and identify super recognizers. Results suggest that high-performing face recognizers rely more on eye-eye distance and eye-nose distance compare to low-performing face recognizers. High-performers also deemphasize eye shape and nose-mouth distance compared to low-performers.

41. Jennifer Marshall: Christopher Newport University
Department of Neuroscience
Neurological Aspects of Sleep, Fatigue, and Cognition
Co-author/s: Kathleen Needham, Ryan Trachtenberg, Ariel Myatt and Jemima Kamran
The present study aims to explore the effects of sleep loss and fatigue on reaction time. Sleep loss is defined in several ways, including sleep debt, sleep restriction, sleep deprivation, and fatigue. Cognitive performance was assessed using Automated Neuropsychological Assessment Metrics (ANAM), a series of motor-cognitive tests which measure cognitive performance. Participants were recruited from an undergraduate university through a self-selection process. In between ANAM tasks, participants completed a 7-point Self-Assessment Manakin scale, evaluating the difficulty and perceived effort on tasks. Participants also completed a survey describing their sleep habits, quality of sleep, napping habits, job/school hours, and caffeine consumption. Data from previous research, which measured sleep loss on cognitive functioning, showed a significant positive correlation between Stanford Sleepiness Scale scores and the variability of standard reaction times. Future research may include the use of an Electroencephalogram to assess fatigue in a more objective manner.

42. Brittany Brown: Christopher Newport University
Department of Psychology
Cognitive Flexibility, Language, and Hemispheric Communication
Interhemispheric communication is the communication between hemispheres via the corpus callosum. When stimuli are presented to both the left and right visual fields, hemispheric communication allows the hemispheres of the brain to share information with each other and work together to determine if the stimuli match. Cognitive flexibility is characterized as an ability to represent knowledge from different conceptual perspectives. Specifically, cognitively flexible individuals can efficiently think about multiple dimensions of stimuli (e.g., shape, color, or number) simultaneously and/or can switch back and forth between tasks that require attention to one dimension with relative ease (Monsell, 2003). The current study examines the association between hemispheric communication and cognitive flexibility. The results show individuals who are more cognitively flexible have greater hemispheric
communication.

43.
Allison M. Seeley: Christopher Newport University
Department of Neuroscience
Is Superior Perceptual Completion of Illusory Contours Facilitated by Hemispheric Communication?
Co-author/s: Christine Anastasio
Visual closure is the ability to visualize complete images from incomplete images and is implicated with the perception of illusory contours. Studies have found that the right hemisphere is more involved in perceiving illusory contours. In this experiment, we utilized a divided visual field paradigm where three 2-dimensional images were shown in one of the four quadrants surrounding a central fixation point. Two intact shapes appeared on the left and right sides of the upper visual field and a partial shape containing illusory contours was shown on either the left or right side of the lower visual field. Participants determined if the bottom shape matched either of the top shapes. Performance was correlated with measures of cognitive ability (WJTCA-R; Woodcock & Johnson, 1989) and a picture completion test (MAB-II; Jackson, 1984,1998). Results reveal superior performance on the visual closure subtest related to enhanced interhemispheric processing of illusory contours.

44.
Ayla Byrd: Christopher Newport University
Department/s of Neuroscience and Psychology
Race Familiarity and Face Perception
Face recognition expertise develops as a function of experience and the more familiar an individual is with a particular race, the more they will be able to distinguish between similar faces within that race. This is referred to as the Other Race Effect, Own Race Effect, or Race Familiarity Effect (Rhodes, Hayward, & Winkler, 2006). Data have shown that faces that are more familiar are processed holistically whereas unfamiliar faces are processed using configural or featural dimensions. The current study explores this in more detail, quantifying information utility for seven face dimensions as a function of the skin tone of the stimulus and the race familiarity history of the observer. Results show that participants who had experience with more races were more sensitive to differences between faces compared to participants who had experienced only one race. This suggests that race effects are due to perception patterns not processing differences.

45.
Carol Paulson: Christopher Newport University
Department of Psychology
Developing a Computerized Method for Quantifying Characteristics of Bubble Nests Formed by Betta splendens
Co-author/s: Morgan Warner, Raluca Ilinix, Amanda Bordeaux, Brook Williams, Andie Knox, Carolyn Iwicki, Lauren Passaro, Sarah Mines, Katie Ryan and Andrew Velkey
Bubble nesting is an important component of the reproductive cycle of Betta splendens, and has been used as an indicator of mate quality in animal behavior research. Previous studies have employed manual grid-counting and pixel-counting strategies to examine bubble nest characteristics; however, grid-counting lacks precision, and pixel-counting, while more precise, is time-consuming when analyzing large data sets. The use of digital image analysis can reduce measurement error and will require reduced time to conduct the analysis. This study compares manual grid-counting, ImageJ and Adobe PhotoShop software to determine the most effective method to quantify bubble nest area. Inter-rater reliability was also tested for techniques that required a human quantification component. The purpose of the present study is to develop and test a computerized image analysis tool to efficiently quantify bubble nest characteristics. Such a method can be used to further behavioral research associated with bubble nesting in Betta splendens.

46.
Emily Kohl, Charity Derrow and Kayla Payne: James Madison University
Department of History
From ‘60s Innocence to ‘70s MADness: Hippies, Booze, and Music Transform a College Campus
The United States underwent radical social change during the seventies. This project aims to uncover the extent to which James Madison University participated in these national social trends. Four thousand students, predominantly
Virginia women, attended Madison College at the beginning of the decade. By 1979, the newly-christened “University” matriculated 8,000 men and women from across the nation. Originally presented in digital format and supported with written and visual artifacts, this project examines three factors that impacted Madison’s transformation. First, there was a politically active, counter-cultural presence that influenced campus policy throughout the decade. Next, an “experimental” campus alcohol policy led to a heightened awareness and accountability of drinking that paralleled national perspectives. Finally, the Madison College Marching Band brought a sense of pride and unity to students as it grew to become “Virginia’s Finest.”