Abstracts of the 2009 MARCUS Conference
Saturday October 10, 2009
Sweet Briar College

Session I

9:30 | KARL SPEER: RANDOLPH COLLEGE
CO-AUTHORS: HELENA BROWN & RANDALL SPEER

RANDOLPH COLLEGE’S MUSICAL HERITAGE: EXPLORING AND PRESERVING FOUR DECADES OF MUSICAL PERFORMANCES AT RANDOLPH-MACON WOMAN’S COLLEGE
For decades, the Randolph-Macon Woman’s College Department of Music has sponsored quality performances by students, faculty, and guest artists. A great many of these performances have been recorded, mostly on reel-to-reel tape. Randolph College’s Lipscomb Library is in possession of these archival recordings, dating back to at least 1963. The recordings were not catalogued, and sadly, the media are deteriorating. The goals of this research were to preserve, catalog, and render these primary historical data available to current students and faculty.

9:45 | MARIA EAKIN: RADFORD UNIVERSITY

THE DIFFERENCES BETWEEN THE USE OF MUSIC BY GENERAL CLASSROOM TEACHERS, MUSIC TEACHERS, AND MUSIC THERAPISTS
Music is used by people all over the world; however, the purpose for which music is used and the method of implementation can vary. This research project specifically looks at the different ways music is used in school systems. Professionals who use music in schools include music teachers, music therapists, and general classroom teachers. The qualifications for these three professionals are somewhat different; however, they all use music. The goal of music education is to teach students musical concepts. The goals of music therapy, on the other hand, are non-musical. Music therapists use music as a medium to address individualized, student goals that are habilitative and rehabilitative. Lastly, general classroom teachers use music to support the learning environment of a classroom or to support academic content. This research further clarifies the different reasons music is used by professionals in schools and compares and contrasts their similarities and differences.

10:00 | BRITTANY MONTORO: LYNCHBURG COLLEGE

ERIK SATIE-PIONEER OF THE AVANT-GARDE IN MODERN MUSIC
With the intent of improving music pedagogy and performance, the purpose of the research is to examine the avant-garde movement in music and its relationship to Erik Satie (1866-1925). The problems associated with this study are as follows: 1) to examine the historical and cultural developments that occurred between 1870 to 1930 in France; 2) to analyze the music during the early twentieth century; 3) to examine the life of Satie and his influences on French composers in the avant-garde movement; and 4) to analyze the formal construction of the Gymnopédie No. 1 (1888), the Gnossienne No. 3 (1893), selections from Sports et divertissements (1914), Vexations (1893) and Parade (1917) in terms of style, philosophy, and compositional techniques. Satie did not receive the same compositional acclaim as Claude Debussy (1862-1918) or Maurice Ravel (1875-1937); however, Satie predated these composers and influenced their thought in the turn of the twentieth century.

10:15 | MATTHEW ROBERTS: RANDOLPH-MACON COLLEGE

TOSHIRO MIFUNE, AMERICAN HERO: THE RELATIONSHIP BETWEEN WESTERNS AND SAMURAI FILMS
The objective of this paper is a developmental and structural analysis of the American Western and the Japanese samurai movie. While both the Western and jidai-geki have been extensively analyzed, the relationship between the two genres is deserving of a closer examination than it has received. This paper tracks the development of the two genres from their beginnings in the late 1890s through their mutual decline in the 1970s, focusing on the period during and after the Second World War. Key styles from this
period are examined structurally to determine how the two styles changed over time, by analyzing a series of binary oppositions, proposed for Westerns by Will Wright, in both selected Westerns and selected jidai-geki. The changes in these oppositions, and in the narrative structure of the films, reveals the influence of each style on the other, and the changing demands of American and Japanese audiences.

10:30 | AMANDA SCHEFFER: JAMES MADISON UNIVERSITY

SYMBOLISM IN EIGHTEENTH CENTURY REVOLUTIONS: A COMPARATIVE STUDY OF THE LIBERTY CAP IN AMERICA AND FRANCE
For centuries symbols have been extremely important to society as they distinguish different peoples, languages, religions, teams, etc. Symbols were especially important during the eighteenth century revolutions in America and France. One image that was used throughout both revolutions was the liberty cap. However, each country used the symbol differently. In America, the liberty cap was first introduced by the British as a radical symbol of independence; however, it quickly became a negative image relating to slavery. On the other hand, the French use of the liberty cap emerged from its use by the sans-culottes and disappeared during the reign of Napoleon. Overall, the liberty cap was extremely important to the level of radicalism of both revolutions.

Session II

9:30 | HEATHER NEWLIN: JAMES MADISON UNIVERSITY

REFUSAL TO CONVICT: INFANTICIDE TRIALS AT THE OLD BAILEY, 1624-1803
Blood stained sheets and claims of regret haunted the Old Bailey. Jurors there decided the fate of hundreds of women accused of infanticide in the seventeenth and eighteenth centuries. These women, mostly single and living in poverty, were accused of committing a crime punishable by death. During the seventeenth century, a large number of cases resulted in a guilty verdict. However, as time progressed, the jurors appear to refuse to convict despite convincing evidence.

9:45 | CAITLIN MCPARTLAND: JAMES MADISON UNIVERSITY

THE ROLE OF ROSIE: THE IMPACT OF PROPAGANDA ON FEMALE HOME-FRONT INTERVENTION DURING WORLD WAR TWO
On December 9, 1941, the day following Congress’ acknowledgement of war, President Roosevelt asked, “Every single man, woman, and child [to be] a partner in the most tremendous undertaking in our American History.” In this speech, he was not only referring to the 16.4 million servicemen who would be called abroad, but also to the millions of women and undraftable men who would run the country in their absence. World War Two was not only fought in European trenches and on Pacific islands, but also in every factory, shipyard, office, and daycare. Despite initial resistance, the demand in production forced employment recruiters and government officials to suspend traditional gender beliefs concerning female capabilities in the workplace. Through intertwined government, media, and industrial propaganda, America became convinced that women were a necessary entity to the war effort, allowing females, for however temporary it may have been, to experience a world in which they, “Can Do It!”

10:00 | PAUL MCDOWELL: JAMES MADISON UNIVERSITY

GUILTY UNTIL PROVEN INNOCENT: A NEW ORLEANS TRAGEDY THAT SWEPT THE NATION
Anti-Italian sentiment in New Orleans reached a new height after beloved Police Chief David Hennessy was suddenly assassinated one foggy October night in 1890. As Hennessy’s maimed body was rushed to the hospital, fellow policeman William O’Connor erroneously claimed “the Dagoes” had slain Hennessy in cold blood. Thirteen Italians were quickly arrested for the crime as anti-Italian fever quickly consumed New Orleans’ white citizenry. Matters became worse six months later when the indicted Italians were declared not guilty. Taking justice into their own hands, thousands of New Orleanians charged the Parish Prison and attacked the innocent Italians, murdering eleven in the process. This presentation examines the nationwide reaction to the lynching of the eleven Sicilian immigrants in New Orleans in 1891 through
the examination of contemporary newspapers and magazines to identify the scope of anti-Italian sentiment in the United States in the late 19th century.

10:15 | DARYL RATHGEB: JAMES MADISON UNIVERSITY

JUSTICE HENRY FIELDING: VIEWS ON EXECUTION AND PARDONS IN THE EIGHTEENTH CENTURY
In the middle of the seventeenth-century, London’s population rose significantly as industry exploded. Sailors and soldiers returning from wars abroad had a difficult time adjusting to this new English society, and therefore a life of crime was both alluring and a means of survival. Former author and playwright Henry Fielding became a magistrate amidst this turmoil, and quickly projected his philosophies and ideas into administering his own style of justice. No longer were executions to be a public circus in which the doomed was portrayed as a hero. Lengthy deliberations in court, lasting months at a time and clogging up the judicial system, were to be cut drastically short. But taking these strict measures, Justice Fielding hoped to deter crime and protect law abiding citizens. Though his policies did not have direct long term influence on the courts, a reevaluation of crime itself followed his departure as magistrate.

10:30 | ANITA ROSE: MARY BALDWIN COLLEGE

NO LONGER HOME TO THAT SCARY CAROUSEL
The decomposition of a local mall, Newmarket Fair Mall in Hampton, VA, allowed for a fascinating study of the rise and fall of the malls. In the span from 1989 to 1997 the mall turned into a local hotspot of retail stores and attractions to two large stories of emptiness and into a large office complex. Formal research on the Mall began in 2005 with online research. There was not much information found online, so a new resource of microfilms from the local paper, The Daily Press, was uncovered. These records began on March 26, 1975 when the mall first opened. A collection of microfilm scans of advertisements and articles about the mall’s rise and fall has been compiled through research the past four years. This “retail research” has led to further study and observation through deadmalls.com and the weblog of retail news from Hampton Roads, Virginia area, at sickmalls.wordpress.com.

10:45 | MATTHEW D. PARKER: JAMES MADISON UNIVERSITY

ROBERT CLIVE: THE HEAVEN BORN GENERAL?
Piracy, war, and native suppression are not common business practice unless you are the English East India Company. In the mid 18th century, the English East India Company shifted from a peaceful trading company to a machine of British colonization in India. At the forefront of this machine was a man named Robert Clive. Clive’s rags to riches story, coupled with his brilliant military exploits, earned him the title the “heaven born general” by the British Parliament; consequently, history knows the value of Robert Clive very well. I argue the catalyst to his legend is that Robert Clive also knew the value of history. By examining three monographs of the English East India Company published throughout the 20th century, one can see how the historical context of Robert Clive has shifted due to Company scholars acknowledging biased sources.

Session III

9:30 | MARNE GARRETON: MARY BALDWIN COLLEGE
CO-AUTHORS: ARI G. BROOKS, MD, ANAT PERETS KATSIR, PHD, AND PETER LELKES, PHD

ACELLULARIZED MURINE MYOCARDIUM AS A TISSUE-SPECIFIC SCAFFOLD FOR CARDIAC TISSUE ENGINEERING AND TRANSPLANTS
In tissue engineering, cells are implanted into polymeric artificial structures, known as scaffolds, which have the ability to support tissue formation. The exemplar cardiac scaffold must accommodate the necessary structural and mechanical support and the surroundings of its host. The objective of this study is to optimize the acellularization technique to provide organ-specific matrices for cardiac tissue engineering. The rat cardiac myoblasts (H9c2) were isolated and removed from loose connective tissue. Then, the H9c2 hearts began the acellularization process. This step was preceded by a two-step washing process. The last step of this experiment involved the Critical Point Dryer (CPD) and Scanning Electron Microscope (SEM). After referencing the SEM images, all H9c2 hearts demonstrated the ability
to provide the necessary mechanical strength and environmental cues. Taken together, our data supports the concept that the biologically derived scaffolds are biocompatible and retain a certain degree of tissue specificity after acellularization.

9:45 | MARGARET BIVANS: MARY BALDWIN COLLEGE

SHIGA-TOXIN PRODUCING ESCHERICHIA COLI: METHOD OPTIMIZATION FOR A PROTEOMIC ANALYSIS USING LC-MS/MS AND APEX

With new streamlined techniques for studying proteomes, it has become more common to use gel-free and label-free quantization. A new quantization technique, Absolute Protein Expression, is the final step in this method and is available free online. Using LC-MS/MS is a common method for quantization, however the purification of the sample has presented a challenge. Through a multi-step process, a procedure for purification of protein samples has been established by using multiple steps of trypsin digestion, fractionation, and chromatography. By using a model organism that holds specific interest for current application, Shiga-toxin producing Escherichia coli, this method could be useful for the processing of other samples. This research repeatedly tested the reproducibility and robustness of a purification method to implement for the remaining studies focused on identifying virulence factors present in the STEC proteome.

10:00 | LARA SLOUGH: SWEET BRIAR COLLEGE

VARIOUS ASPECTS OF FEEDING IN THE CHAIN CATSHARK, SCYLIORHINUS RETIFER

I studied various aspects of feeding, including consumption and specific growth rate, in juvenile and adult chain catsharks, Scyliorhinus retifer. The adult female chain catsharks had a mean consumption rate of 0.6% of their body weight per day (BW/d), and the adult males had a mean consumption rate of 0.4% BW/d. The juvenile chain catsharks had a mean consumption rate of 1.2% BW/d, and the adults had a mean consumption rate of 0.6% BW/d. The juvenile chain catsharks had a mean specific growth rate of 0.02% BW/d and the adults had a mean specific growth rate of -0.11% BW/d. More research is necessary for statistically significant results, but my results seemed consistent with those of other studies.

10:15 | DEVON CHENETE: MARY BALDWIN COLLEGE

CO-AUTHORS: AARON KRUEGER, RUI ZHAO

INHIBITION STUDIES OF THE SIX1-EYA2-DACH1 INTERACTION

Drosophila eye development has regulator genes with vertebrate homologs that interact in cancer cells. Eyes-absent Drosophila gene is homologous to the vertebrate Eya2 gene. This gene is amplified in 14.8% of ovarian cancers. Sine oculis Drosophila gene is homologous to the vertebrate Six genes that are over expressed. Dachshund Drosophila gene is homologous to the vertebrate Dach genes. Its amino acid sequence is similar to the Ski/Sno protooncogenes. Research focused on identifying an inhibitor of Six1 activation by breaking the Six1-Eya2-Dach1 interaction. A screen for an inhibitor of Eya2’s phosphotase activity was done. Activity enables Dach1 to activate Six1. Attempts were made at mutating phosphotase dead Eya2 268 protein. The interaction site between Dach1 protein and Six1 protein was studied. Blockage prevents Six1 activation by the Dach1-Eya2 complex. An interaction between Dach1 DD1 domain and full length Six1 was identified. Compounds inhibiting these two interactions can be used in anti-cancer therapy.

10:30 | LESLEY TYLCZAK: RANDOLPH COLLEGE

CO-AUTHOR: DR. OLA FINCKE

AN EXAMINATION OF THE DREISSENA POLYMORPHA’S IMPACT ON THE FEEDING BEHAVIOR OF MACROMIA ILLINOIENSIS

Larval members of Macromia illinoiensis, a sprawling odonate, are known to suffer from direct colonization by Dreissena polymorpha, an invasive mussel species, but the exact ramifications have not been comprehensively explored. To determine whether the addition of a mussel load impacts feeding success, instars were offered Hexagenia larvae in a feeding arena. Individuals were tested both with and without a mussel load in conjunction with a paired instar undergoing the opposite treatment. Despite non-colonized instars completing a greater number of successful feeding events on average, data did not
suggest that colonization, mussel load, or initial mass of the tested instars influenced feeding success or movement in a statistically meaningful manner. Observations between daytime and nighttime trials supported the conclusion that Macromia is a nocturnal predator; nevertheless, data also suggested that they will feed opportunistically during daylight hours when prompted by sufficient prey densities.

10:45 | SAMANTHA SKIBA: MARY BALDWIN COLLEGE

DATA COLLECTION METHODS FOR DETERMINING THE PREVALENCE OF AVIAN MALARIA IN RED-EYED VIREOS AND OVEN BIRDS
Blood and feather samples from Red-eyed vireos and Oven birds were collected at various locations around Augusta County, Virginia and at the Hemlock Hill Biological Research Area in Pennsylvania. They were collected to identify the prevalence and intensity of infections by avian malaria (Plasmodium, Haemoproteus, & Leucocytozoon) associated with this bird species. Mosquitoes (Culex, Aedes, etc.) and biting midges (Culicoides) were collected in both locations in order to quantify the prevalence of malarial parasites in the insect vectors. These samples will be analyzed for the presence of avian malaria and we intend to identify parasite species lineages by the use of DNA sequencing. Information of this nature would greatly inform the debate on the pathogenicity of Avian Malaria and will allow us to examine the efficacy of published models of host-parasite dynamics.

Session IV

9:30 | MARIO R. JONES & SCIDNEY A. MORRIS: LONGWOOD UNIVERSITY
CO-AUTHOR: CHRISTOPHER MOORE

GROWTH OF ZNO THIN FILMS VIA THERMAL OXIDATION OF SPUTTERED METALLIC-ZN
We have grown thin layers of zinc oxide (ZnO) via thermal oxidation of dc sputtered Zn-metal films on glass. We found that variations in the annealing temperature result in differences in the visual appearance. Films appear metallic, translucent or transparent when annealed for several hours at room-temperature, 300°C and 600°C, respectively. Atomic force microscopy (AFM) images show a uniform distribution of protrusions approximately 200 nm in diameter for the un-annealed Zn film. When annealed at 300°C for 1 hour, a similar morphology is seen, though a bunching of protrusions is observed. At 600°C, tall nano-scale “whiskers” are seen. X-ray diffraction spectra indicate that annealed Zn-films transform into polycrystalline ZnO with the Wurtzite structure. At low temperature, zinc remnants are still observed, whereas at high temperature they are not. Zinc oxide films and nanostructures have attracted interest as potential materials for optoelectronic devices operating n the blue-ultraviolet range.

9:45 | KATHERINE-JO GALAYDA: MARY BALDWIN COLLEGE

USE OF THE YEAST ESTROGEN SCREEN TO DETECT ENDOCRINE DISRUPTING CHEMICALS IN AND AROUND THE SHENANDOAH RIVER
Observations of intersex fish in the Shenandoah River and its tributaries have been cause for concern in recent years. Although the causes to these problems are unknown, it is thought that the presence of endocrine disrupting compounds (EDCs) in the waters maybe causing these deformities because they interfere with hormone signals at concentrations as low as 0.5-1 ng/L. To determine if EDCs are the causes of intersex fish in the Shenandoah, the Yeast Estrogen Screen (YES) was used. The YES procedure is a bioassay involving yeast cells (Saccharomyces cerevisae) genetically modified to incorporate the human estrogen receptor (hER). When exposed to EDCs, the cells produce β-glycosidase, which reacts with o-nitro-phenyl-b-galactopyranoside (ONPG). This reaction determines the activity of EDCs in the sample. All samples collected exhibited definite estrogenic activities, which indicates possible contamination of EDCs although further analyses will be required to obtain more reproducible results.

10:00 | NINA K. E. RANDOLPH: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHORS: SHEENA H. CLIFT, JESSICA N. WATSON, APRIL D. M. BOUCHER, GEOFFREY C. KLEIN, LISA S. WEBB

DETECTION AND QUANTITATION OF AMINO ACIDS IN SEXUALLY MATURE ODODOILEUS VIRGINIANUS BY GAS CHROMATOGRAPHY MASS SPECTROMETRY
The purpose of this study is to analyze and quantify the composition of essential amino acids present in a sample of muscle tissue from Virginia whitetail deer (Odocoileus virginianus) using Gas Chromatography Mass Spectrometry (GC-MS). Amino acids are multifunctional and therefore difficult to analyze by a single technique. To circumvent this problem, we derivatize the amino acids using N-tert-butyldimethylsilyl-N-methyltrifluoroacetemide (MTBSTFA). This derivatizing agent works by attaching to the oxygen and nitrogen sites on the amino acids and thereby creating a volatile compound suitable for examining with the GC-MS. Fragmentation occurs at similar cleavage sites for all amino acids, allowing for quick and easy identification of each of the separated peaks in the gas chromatogram. We were able to identify seven of the eight essential amino acids and quantitate methionine, valine, leucine, isoleucine, threonine, and phenylalanine.

10:15 | KATHRYNE ALLEN: RANDOLPH COLLEGE
CO-AUTHOR: DR. KURT SEIDMAN

AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THERMAL BLOOM DIAMETER AND PHYSICAL PROPERTIES OF MOLECULES

The thermal energy of a laser beam passing through a medium causes a change in density and creates a divergent optical lens in a process known as thermal lensing. When using thermal lensing for calorimetric applications it was noticed that the bloom diameters produced by assorted organic compounds seemed to be related to the nature of the compounds (alcohols, aromatics, halogenated compounds, etc). An investigation of this pattern was conducted to determine which physical properties were responsible for the diameters of the resulting bloom diameters. After examining a wide variety of compounds and properties it was determined that four properties, heat capacity, density, eluotropic series, and refractive index were most significant in predicting the size of a thermal bloom.

10:30 | JENNY THURMAN: LYNCHBURG COLLEGE
CO-AUTHORS: DR. PRISCILLA GANNICOTT & DR. NANCY COWDEN

FLORAL FRAGRANCE INVESTIGATIONS IN CYPRIPEDEUM PARVIFLORUM VAR. PUBESCENS POPULATIONS

To explore the relationship between pollinator attraction and fruit set, two different sampling methods (static headspace solid-phase microextraction and dynamic headspace sampling) were used to collect floral fragrances from central Virginia populations of Cypripedium parviflorum var. pubescens during the 2008-09 flowering seasons. The identity of the volatile components present in the fragrance was confirmed by GC-MS. Our results suggest that large yellow lady’s slippers produce scents only over a short time span. In addition, nonanal, phenylacetaldeyde, and phenylethyl alcohol, the components that make up the largest relative percentages of the sampled fragrances, serve as attractants to as yet undetermined pollinators. Extension of our investigation should enable the determination of the role of fragrance variation in the differential reproductive success of C. parviflorum var. pubescens individuals.

10:45 | POOJAN PYAKUREL: RANDOLPH COLLEGE
CO-AUTHORS: ROSHA POU DYAL & DR. KURT SEIDMAN

A THEORETICAL INVESTIGATION OF FACTORS THAT INFLUENCE THE CARCINOGENICITY OF POLYCYCLIC HYDROCARBONS THAT SUFFER ONE-ELECTRON OXIDATION

Polycyclic Aromatic Hydrocarbons (PAHs) have been linked to cancer for several hundred years. However, not all PAHs are carcinogenic. One-electron oxidation is one of the several mechanisms that have been proposed to explain the carcinogenicity of PAHs. A number of factors related to the electronic structures and geometries of these compounds are thought to contribute to their carcinogenic strengths. This paper describes a theoretical investigation of one-electron oxidations of PAHs and the relationship between certain properties, such as charge delocalization and strain in the ring system, and carcinogenicity. It has been determined that particular structural features, such as the presence of an alpha-prime carbon at the peri position in the ring system, influence the distribution of charge which seems to correlate well with carcinogenic strength.

Session V
THE BILLION DOLLAR BEACH: ASSESSING THE EFFECTIVENESS OF THE MARINE LIFE CONSERVATION DISTRICT AT WAIKIKI

Snorkelers at the Waikiki Marine Life Conservation District (MLCD) will encounter an area devoid of coral, reduced fish abundance, and rapidly expanding invasive algae. The result of a depressed population of herbivorous fish, combined with a constant flow of nutrients from the heavily populated and utilized Waikiki area, is that introduced algae in the area can grow rapidly, out-competing native algae and preventing coral recruitment. Using trained community volunteers, this study developed marine survey techniques to undertake fish counts and benthic surveys along Waikiki. While the primary goal of this survey was to look at the effectiveness of the MLCD, the project was also undertaken to ensure that baseline data exists to evaluate the effectiveness of any restoration or recovery efforts undertaken in the future in the Waikiki area, whether they entail algae removal, attempts to control non-point source pollution, or monitoring offshore sand mining effects.

FIRST-YEAR SURVIVORSHIP OF SEVEN WETLAND TREE SPECIES IN THREE NON-TIDAL FRESHWATER WETLAND COMPENSATION SITES IN LOUDON COUNTY, VIRGINIA

Section 404 of the Clean Water Act requires a permit to destroy wetlands and typically necessitates compensation. Compensation sites have routinely detected poor survivorship among planted tree species. In this study seven wetland tree species of three planting types were evaluated. Trees were planted in the spring of 2009 and first year measurements were made in summer of 2009. Of the Seven species Quercus bicolor and Quercus palustris showed the lowest mortality rates. While the gallon planting type showed the greatest survivorship among six of the seven species planted. The data therefore shows that despite the extra cost, the gallon planting type is the most effective choice for mitigated wetlands.

GROWTH OF SEVEN WETLAND TREE SPECIES IN THREE COMPENSATORY WETLANDS IN NORTHERN VIRGINIA

In wetland compensation sites the establishment of woody vegetation is considered successful when tree density reaches 400 stems/ha. Growth rates of these trees may be impacted by potting type, as well as differences between the species. Saplings of seven wetland tree species with three different potting types were planted by students in three Northern Virginia wetland compensation sites in early March 2009. Height, ground diameter, and canopy measurements were taken two weeks later and again in late August 2009. The growth rates for ground diameters, canopy diameter, and height varied greatly between species in each planting type. Overall growth was typically greatest in the gallon planting type regardless of species, and the least in the bare roots. The gallon planting type also showed the least stem height loss. The higher growth rates in the gallon planting type indicate they may be a better choice for wetland restoration projects.

THE EFFECT OF PASSIVE INTEGRATED TRANSPONDER (PIT) TAGS ON GROWTH OF HATCHLING PAINTED TURTLES (CHRYSEMYS PICTA)

The advantages and disadvantages of using Passive Integrated Transponder (PIT) tags were assessed. Previously, the advised way of marking turtles was to remove toes to give the turtle an identifying number. This method has drawbacks in terms of causing considerable harm to the hatchlings. PIT tagging is replacing toes clipping in many studies. Pit tagging is difficult and not advised for hatchling turtles. The normal tag insertion technique had to be modified for use in hatchlings. The growth rate will be monitored for three sets of turtles; one set will be tagged, another set will get the same surgery but no tag will be
placed in the turtles, the third set will be the control. The rate at which tags are rejected is also an important consideration in determining if this method can be used in field studies.

Session VI

11:15 | ANDREW W. GILLMORE: WASHINGTON AND LEE UNIVERSITY

AN UNDERSTANDING OF A MORAL RIGHT
This discussion will focus on the concept of a moral right. What is a moral right? Secondly, do moral rights exist? As part of a definition of moral rights, are they universal and are they natural? Are moral rights different from other kinds of rights, such as political, social, economic, and business rights? How so? This presentation is designed as a stepping stone towards an Honors Thesis in philosophy.

11:30 | RACHEL CROWDER: RANDOLPH COLLEGE

ARTISTIC VALUE: INTEGRATING THE AESTHETIC AND THE ETHICAL
Traditionally, the Modernist view has been that art is a completely separate value category from the ethical therefore having no relation to or responsibility for morality with regard to content or social effects of the work. More recently, this idea has been challenged, but to what degree and in what ways the aesthetic and ethical are actually related remains contested. Does the ethical arise from and depend on the higher value category of the aesthetic as Marcia Eaton argues or is the ethical superior making censorship justified as a means of controlling corrupting effects of immoral content? This project will attempt to discern exactly in what ways and to what extent the aesthetic may influence the ethical and vice versa. In particular, this paper will examine and evaluate the case for the possibility of artistic value arising precisely as a result of a work’s immoral content.

11:45 | KRISTIN ADAMS: WASHINGTON AND LEE UNIVERSITY
CO-AUTHOR: EDITED BY NATHANIEL GOLDBERG

THE REALITY OF FICTION: AN APPLICATION OF DAVID LEWIS’S PLURALITY OF WORLDS THESIS TO FICTIONAL CHARACTERS
Is fiction real? This paper will utilize a multiplicity of worlds to provide the solution and will begin by outlining and explaining David Lewis’s argument for the existence of possible worlds—where all worlds are as real as the actual world. Next, this paper will apply Lewis’s plurality of worlds thesis to fictional characters, leading to an argument which proves the existence of fictional things. This paper claims that because there are real possible worlds where our ‘fictional’ characters are real, it is the case that these fictional characters are real. Real possible worlds are real, just like our actual real world. If fictional things exist in a real world, then they exist as things exist in the actual world. It is thusly that we arrive at the conclusion that fictional characters do exist. Not only do they exist in form, but they exist as we do—they are real.

12:00 | COURTNEY M. CUNNINGHAM: SWEET BRIAR COLLEGE

IN PURSUIT OF GODLINESS: DEIFICATION OF MORTALS IN ANCIENT GREECE
The division between mortality and immortality in the ancient Mediterranean was neither stable nor static; there were numerous immortal beings that shared the world with humans, but their status was by no means exclusive. One of my main interests is the transitional period between the mythological past and the Hellenistic Age, when the religious and political barriers between man and god began to erode. The project will begin by looking at the original concept of the semi-divine hero and then tracking the development of the religious movement known as “hero cults” that spread throughout the classical Greek world. Another primary focus will be the Hellenistic king Alexander the Great, who was the innovative progenitor of many influential ideas of divine kingship. The last few weeks will explore the impact the idea of the divine king may have had on the rise of the Roman Empire and its imperial cult.

12:15 | LINDSAY VAN LEIR: ROANOKE COLLEGE

CONFLICTS OF 'SELF': THE ANCIENT WORLD AS A MIRROR FOR THE 'MODERN'
Following the mid-19th century’s modern turn, the individual’s struggles with personal identity are perhaps more vocalized, but does this imply that we as “modern” persons are any closer to answering questions of identity than the ancient Greeks? Greek tragedies hold, in their construction, historical context, and content, intense psychological and social debates that are comparable to this historically contemporary issue of individual identity. It will be argued that these interpersonal conflicts of self-awareness are similarly alive and significant at different points in history (the ancient and the ‘modern’). If it can be shown that there are like strands of thought about personal identity and self-awareness, one might question the definition of what it means to be a “modern” person.

12:30 | MELISSA BETH VALENTINE: WASHINGTON AND LEE UNIVERSITY

A BRIEF EXAMINATION INTO THE PHILOSOPHY OF ADAM SMITH: ITS INFLUENCES AND METHODOLOGY
Most know Adam Smith through his An Inquiry into the Nature and Causes of the Wealth of Nations. However, Smith’s range of intellectual thought extends beyond economics. Through The Theory of Moral Sentiments and “The Principles Which Lead and Direct Philosophical Enquires; Illustrated by the History of Astronomy,” I have begun to explore aspects of Smith relevant to various disciplines, specifically philosophy and science. I first consider Smith’s relation to other philosophers, such as Aristotle and the Stoics, and discuss the context in which Smith wrote. Second, I consider Smith’s view of philosophy/science. Next, I address how many components of Smith’s philosophy seem to anticipate current trends, questions, and answers in psychology and physiological neuroscience. Finally, I turn to Smith’s methodology and his classification as an empiricist and Newtonist. Although I do not have any definitive conclusions, I hope to spark a dialogue regarding Smith’s non-economic contributions.

Session VII

11:15 | JOSHUA STURMFELS & DAVID E. TOSTO: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHORS: KIMBERLY MAZZUCA, MORGAN COTE-COBLE, AND DR. JEFFREY GIBBONS

ENCODING SPECIFICITY ONLY FOUND FOR NEWSPAPER HEADLINES
The current study utilized newspaper and tabloid headlines used in previous experiments. For both headlines types, participants were initially either presented with headlines that contained synopses or headlines that completely lacked synopses. At testing, headlines and synopses were presented systematically to create matching and mismatching synopses conditions to test for encoding specificity. In an attempt to not only replicate past encoding specificity patterns but also produce a stronger encoding specificity pattern, the current study utilized complete counterbalancing and rebalanced synopses conditions. Participants rated the believability of each headline on a 7-point Likert-type scale that followed the headlines at presentation and test. Recognition was also assessed. Results of the current experiment generally showed encoding specificity for newspaper headlines and a lack of encoding specificity for tabloid headlines. These results suggest there may be an optimal range of encoding specificity.

11:30 | HOPE HACKEMEYER: VIRGINIA MILITARY INSTITUTE

ARE HYPOMANIC BEHAVIORS IN COLLEGE STUDENTS A DEFENSE AGAINST EARLY DEVALUATION?
This study investigated the relationship between hypomanic behaviors in college students and early experiences of parental devaluation. METHOD: 49 college students completed the MMPI-2 Hypomania scale, responded to projective tests scorable for parental devaluation (pd) and need for achievement (nAch), and use adjective checklists to describe their parents. RESULTS: 36% of the sample exceeded the clinical threshold for hypomania. Hypomanics scored significantly higher than non-Hypomanics on pd and significantly lower on nAch. Participants who described their parents positively on an adjective checklist but produced negative parental content on the projective test displayed the most extreme Hypomania scores. Participants who described their parents negatively and produced negative projective content displayed the lowest Hypomania scores. Severity of hypomanic symptoms in this sample is related to degree of conflict regarding parental devaluation. It is possible that some patients diagnosed with bipolar II disorder may be strongly defending against early experiences of parental devaluation.

11:45 | LORIANN GARCIA: LYNCHBURG COLLEGE
HIDING IN PLAIN SIGHT: ANTI-PREDATOR BEHAVIOR OF A SPIDER IN HABITATING AN ANT-DEFENDED ACACIA

I investigated the use of an ant–defended plant (Acacia melanocerus) by an orb-weaving spider, Eustala oblonga, in Soberania National Park in Panama. Field studies were performed to determine if behavioral adaptations of the spider allow it to exploit ‘enemy free space’ created by the ants (Pseudomyrmex satanicus) that vigorously attack any animal they encounter on the plant. Observations of adult spiders indicate that they spend a large percentage of the day on the plant rather than on their webs, that they typically avoid areas of high ant activity, and that they rarely move when they are on the plant. Further, observations of ant-spider interactions indicate that aggressive behaviors of ants towards spiders are rare when spiders are sitting still, but are much more frequent when spiders are moving. These data suggest that spiders on the plant surface avoid ant aggression behaviorally, at least in part, by remaining still.

12:00 | LAUREN MOORE: CHRISTOPHER NEWPORT UNIVERSITY

SADOMASOCHISM IN MEDIA

In current popular culture, we tend to hold sadomasochistic images in two categories- pathologized and romanticized. This trend tends to be unflinchingly dichotomous, with no middle ground of tolerance between the two categories. I would like to discuss my findings and observations as to what makes a sadomasochistic image embraced or shunned by society. Using previous sadomasochism and sexual objectification research, I will critically evaluate popular movie figures such as the vampire and the serial killer. With this presentation I hope to address questions like, ‘what makes the vampire not only embraced, but expanded upon to a whole cultural fad?’ and ‘why do we not see this repeated with the cinematic serial killer?’

12:15 | SARAH WHITE, ANDREW HARTZLER, BEN ROSEBERRY, ANGELA TOSCANO: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHORS: STEPHANIE KOFRON & JENNIFER GAMBLE

AN EXAMINATION OF ALCOHOL AND THE FADING AFFECT BIAS IN MEN AND WOMEN

The tendency for unpleasant emotions to fade more over time than pleasant emotions is known as the fading affect bias (FAB; Walker et al., 2003). The FAB is generally considered a healthy coping mechanism. However, Mohr et al. (2005) found that addictive behaviors, such as the use of alcohol, are often used to manage unpleasant emotions. The current study examined the relation of alcohol consumption to the FAB for alcohol and non-alcohol related events for men and women. An Alcohol Quantity and Frequency questionnaire was used to assess participants' average alcohol consumption and an event questionnaire was used to assess emotions associated with storytelling behaviors for alcohol and non-alcohol events, respectively. Gender was found to moderate Fading Affect Bias, such that men showed greatest fading of emotions associated with alcohol related events whereas women showed greatest fading of emotions associated with non-alcohol related events. Implications are discussed.

Session VIII

11:15 | YANPAING SOE OO: RANDOLPH COLLEGE

CRYPTOGRAPHIC PRIMITIVES RESEARCH PROJECT

Key agreement schemes in cryptography allow two parties to agree on a shared key over a public channel. This key is then used to encrypt/decrypt messages. Most cryptosystems including the well-known Diffie-Hellman Key Agreement Protocol work over commutative groups such as Zp. In our project we studied cryptosystems that could work on non-commutative structures. We searched for possible non-commutative platforms that could be used in a new key-exchange primitive. In particular we looked into matrices and symmetric groups. Matrices have some characteristics that we desire such as multiplication operation is associative and non-commutative but it turned out that the system became breakable. Then, we moved on to work with permutation groups which have similar properties but are larger in size. We faced several obstacles to construct a workable platform. It is an ongoing research to investigate whether different subsets of matrices and permutation groups could provide a reliable platform.
11:30 | MIKE BOKOSHA: MARYMOUNT UNIVERSITY

SIR-V MATHEMATICAL MODEL TO ANALYZE THE ROLE OF VACCINATION IN CONTROLLING DISEASE OUTBREAKS
My research examines a simple SIR-V model that approximates the movement of a disease such as the flu through a well-mixed population. I am interested in several questions concerning the role of vaccination in controlling an outbreak. I first examine the phenomena of herd immunity in the context of this model and specifically ask what percentage of the population would need to be vaccinated to protect the entire community. I then consider a more complex question: if immunity from vaccination wanes more quickly than immunity from disease recovery, is vaccination still a good tool for mitigating the progress of an epidemic.

11:45 | NEUSA FACENDA: MARYMOUNT UNIVERSITY

IMMUNOPATHOGENESIS OF DENGUE FEVER
Dengue Fever is a mosquito-borne viral disease currently endemic in about 100 countries worldwide. It is estimated that two-fifths of the world’s population is at risk of contracting the dengue virus. Even the United States, that has been free from dengue fever, is at risk because soldiers deployed to areas where dengue fever is endemic may return infected with the virus. In this presentation, I will give a brief overview on the virology and pathology of the disease. Furthermore, I will explore the immune response to a primary dengue infection, as well as the subsequent infection with different strains of the dengue virus. I will answer questions such as, why symptoms may vary so greatly from person to person; why secondary infections may be more dangerous than primary infections; and what is the mechanism that leads to morbidity and mortality. I will also propose alternative methods to control dengue fever.

12:00 | JAMES M. RAY: VIRGINIA MILITARY INSTITUTE

CAVITY-RINGDOWN SPECTROSCOPY: A STUDY OF MOLECULAR OXYGEN
Cavity Ringdown Spectroscopy is the study of absorption bands of molecular gases. By firing a laser between two highly reflective mirrors and measuring the decay of the light each pass you can determine what wavelengths of light the gas in the chamber likes to absorb. In our particular set up, we measured the P branch and R branch of molecular oxygen. To achieve more accurate data, we assembled a new cavity which will cut down on light noise and allow us to achieve lower pressures for sharper absorption lines. The current program that runs collects the data had to be amended to allow the control of a new laser for ease and accuracy of the data collection.

12:15 | BERLEY L. RISTER III: VIRGINIA MILITARY INSTITUTE

DISSOCIATION OF MARTIAN ATMOSPHERE
We are currently building a cavity ring-down spectrometer to study and optimize the dissociation of carbon dioxide into molecular oxygen under simulated Martian atmospheric conditions. We have designed and fabricated a custom discharge chamber that we will use to optimize dissociation of the Martian atmosphere. We are currently using the new assembly to analyze the spectrum of the plasma that is produced during the discharge and study the ring down curves of the dissociated gas; from this we are able to tell the content of the oxygen inside the chamber.

Session IX

11:15 | SAM RILEY: JAMES MADISON UNIVERSITY

DEVIL'S TOOTHPICKS AND COFFIN NAIL: GEORGE TRASK AND LUCY GASTON’S WAR ON TOBACCO
Reverend George Trask set the stage for fighting against tobacco use. Trying to reach the hearts of the country, Trask worked to convince people that tobacco was unpatriotic, immoral, and even sacrilegious. Inspired by the work of Trask, Lucy Gaston, a Chicago-born teacher and youth leader took similar steps in ending tobacco, but took things to the next level. Some of the techniques Gaston used included “guerilla” tactics, such as hiring young children to sneak up behind smokers, steal and stomp out their cigarettes, and run. As Trask and Gaston battled the tobacco industry mostly on moral and religious
grounds, they soon found that their reform work was not enough to persuade people from using the weed. They met many obstacles, including manipulation from tobacco companies and politicians, war, increasing technology, and their own limits in knowledge of the plant.

11:30 | SARAH HOPE BERLINGER: JAMES MADISON UNIVERSITY

DARING DAMES OF DIXIE: THE CONTRIBUTIONS OF FEMALE SPIES TO THE AMERICAN CONFEDERACY

Confederate female spies are often accused of being useless, petty, and even dangerous to the cause of the Confederacy. Many of the beliefs exist because of the small amount of scholarship devoted to studying such women. Female spies, both Union and Confederate, used a variety of clever ruses, as well as their feminine charms, to entice soldiers into revealing information that could be used by the opposing forces. There are no two better examples of such women than Belle Boyd and Rose O'Neal Greenhow. Through the use of historical newspapers, diary entries, secondary sources, and close analysis of the memoirs Boyd and Greenhow, two of the most famous Civil War spies, this negative view of Confederate female spies will be disputed.

11:45 | ROBERT WOODSIDE: JAMES MADISON UNIVERSITY

THE BEST CAPITALIST DURING WORLD WAR II: ANDREW JACKSON HIGGINS

Andrew Jackson Higgins was a boat builder for the United States and Allies before and during World War II. He pioneered several types of new boats, specifically the land craft used during D-Day. The ways in which he managed his small company let it grow into one of the largest ship builders on the east coast.

12:00 | BRANDON BOWYER: JAMES MADISON UNIVERSITY

THE SPITHEAD MUTINY REVISITED

In 1797, sailors in the British Royal Navy's Channel Fleet at Spithead were the English mainland's last line of defense against the French. But the sailors were tired of the poor pay, poor food, and poor treatment of the sick and wounded; and mutinied for their improvement. For almost 100 years, the mutiny has been seen as revolutionary boil-over from France and Ireland. In this paper, the historical lens will be changed to view this event as a labor strike. Changing this lens not only reveals much about labor in Early Modern England, but also gives insight into the character of sailors and laborers in the late 18th Century.

12:15 | A. NICHOLAS POWERS: JAMES MADISON UNIVERSITY

WARFARE IN THE SEVEN YEARS' WAR: WHITE AND WARRIORS

This work studies the transformation of British military tactics during the Seven Years' War. An adherence to traditional European tactics marks the beginning years of the war, to be replaced by the more adept tactics of native Indian peoples. The necessity for this change will be observed and thoroughly examined, supported by an array of primary and secondary sources.

Session X

2:00 | ZEHRA R. ASGHAR: SWEET BRIAR COLLEGE

VARYING DISCOURSES OF ROMANTIC LOVE IN LUCKNOW, INDIA

I will explore varying discourses of romantic love in Lucknow, India by employing an emotion anthropological approach to the fieldwork I conducted between January and April of 2009. I hope to complicate the idea of emotion as an internal essence whose scope and interpretation is universally uniform and (therefore) independent of culture by drawing an explicit link between the notion of romantic love and the context in which it resides. Specifically, I will intersect Indian affect with public culture, socioeconomic situations, consumerism, and modernity/ modernization.

2:15 | REBECCA RODGERS: JAMES MADISON UNIVERSITY

TEACHING TOOLS OF THE 1950S: EXPLORING DATING AND MARRIAGE
During the 1950s, adults produced a wide variety of literature on dating and marriage. The literature focused on educating teenagers and young adults about how to approach dating and marriage. Among these educational materials were textbooks, popular magazines and social guidance videos. The guidance offered in these materials reflected many of the concerns that adults had in the 1950s about teenagers, young adults, dating and marriage. This presentation will tie together these topics and the adults’ concerns by looking critically at the social guidance materials intended for teenagers in the 1950s.

2:30 | ALEXANDRIA RUBLE: CHRISTOPHER NEWPORT UNIVERSITY

GENDERED DEMOCRACY: THE ROLE OF GERMAN WOMEN’S GROUPS IN REALIZING CIVIC ENGAGEMENT AND GENDER IDENTITY
Post-World War II Germany offered an exchange of cultural ideals between Americans and Germans. Women represented a subgroup that exemplified this reformation of social structure. This presentation examines the interplay of democratic culture, gender identification, and postwar reconstruction. In doing so, it becomes evident that as German women embraced democratic culture, they reinforced gender stereotypes. On a short-term basis, this helped women forge an identity that fit within the norms of their own gender perceptions. In the long-term, however, this had a significant impact on German women of later generations.

2:45 | MARETTA KRISTA: JAMES MADISON UNIVERSITY

PLEASURE AND THE PURSUIT OF WHITE SKIN: A LOOK AT CHANGE IN EIGHTEENTH-CENTURY ENGLAND
This presentation will look into some of the emerging ideologies of eighteenth-century England, specifically those presented by Adam Smith & Daniel Defoe, which focus on luxury and race. These ideologies directly influenced the types of products that were produced and the material culture of the time, specifically focusing on the make-up used and the practice of skin whitening. Skin whitening was a widely practiced beauty regime seen in many aspects of eighteenth-century England. This project will also look at its influence on social class and art as well as Pears Soap, a commodity created to aid this growing obsession.

3:00 | JEANNE FUSELLO: NEUMANN UNIVERSITY

WOMB FOR RENT: AN ARGUMENT FOR THE LEGALIZATION OF COMMERCIAL SURROGACY
Surrogacy, the agreement of one woman to bear a child for another woman is current controversial topic, yet its history dates back thousands of years. While surrogacy has evolved from its biblical beginnings current legislation has created many discrepancies in the laws, resulting in the exploitation of woman through the outsourcing of surrogacy to India, the disregard of woman’s autonomy in the currently used surrogacy contracts and contracts between intended parents and surrogates that did not anticipated legal or custodial difficulties. My thesis as stated in my paper was as follows, “Uniform laws will help to avoid exploitation of women by preventing outsourcing to India and protecting the autonomy of American women who choose to become surrogates, as well as create fair contracts between couples that anticipate any legal difficulties.”

3:15 | PRIYANKA NADAR: MARY BALDWIN COLLEGE

THE HEALTHCARE SYSTEM OF INDIA: AN OBSERVATIONAL STUDY
This project was a one-month observational study of the Indian healthcare system. It took place at PSG Teaching Hospital, Coimbatore. It was executed through interview of surgeons and doctors. Multiple doctors were shadowed, and their lifestyle was observed. Patients, slum dwellers, and traditional healers/were interviewed. A leprosy center, child services center, and a health camp were visited. A pediatric surgeons’ conference was attended, where telecasted workshops were observed. The Indian healthcare system is three tiered, and is owned by both the private and public sector. The primary tier is comprised of small health centers. The other tiers are made up of hospitals. This provides health care to all walks of people. I concluded that the Indian healthcare system was multifaceted, and that there were good and bad aspects to their system. This project was pursued to better understand a doctor’s life and to influence career choices.
Session XI

2:00 | CAITLIN RIZZO: MARYMOUNT UNIVERSITY

BLACK AND WHITE PRINT: RACIAL RELATIONS AND THE PRESS IN WELLES’ ‘VOODOO’ MACBETH

Orson Welles’ 1936 production “Voodoo” Macbeth, sparked one of the most important racial dialogues in the American theatre. Under the direction of the Negro Unit of the Federal Theatre, Welles hired a non-traditional cast of 150 black players and created a unique set by moving the classic Scotland to tropic Haiti. The move brought credibility back to Shakespeare’s witches and brought out the national press. Even as mainstream critics applauded the play’s lavish scenery, they berated the actors. The black press answered with a variety of responses. Many defended the play as a historical moment, but others felt that the play sent a demeaning message that the greatest African American acting occurred under white direction. What resulted was an important national discussion as both the mainstream and black press grappled with questions of heritage, the beginnings of integration within the American theatre, and the worth of the African American actor.

2:15 | TANYA SALAS-PLATT: SWEET BRIAR COLLEGE

BRINGING DOLORES VEINTIMILLA TO LIFE

In April 2010, SBC Theatre will present “Desvelada: Dolores Veintimilla”; a play about poetry and politics in Dolores Veintimilla’s life and tragic death, and an historical and still relevant commentary on power, religion, social constraints and gender inequality, based on the life of this Ecuadorian poet who died in 1857. “Desvelada…” was written and will be directed by myself, a senior Theatre and Film major. The project commences with historical, political and artistic research on Ecuador and the world during the second half of the 19th century; which in turn shines a light on our main character, our concept and themes. The latter developed into set, costume, prop, light and sound choices and designs. I will discuss the extensive, complex and little-known role of the director in today’s theater world; focusing on the research and creative process undertaken prior to casting and ‘directing’ a show.

2:30 | JULIA BANCROFT: CHRISTOPHER NEWPORT UNIVERSITY

FOOD, CLASS, AND DON QUIXOTE

In our food driven culture, foods have different purposes such as nourishment, commemoration of gatherings, and satisfaction. In the novel Don Quixote La Mancha food is an expression of social class. In my oral session I will explain how Don Quixote and his sidekick Sancho develop a chiastic structure of social class through their changing diets. While Don Quixote is the superior in the beginning of the chiasm and Sancho is belittled beneath him, by the end their relationship is reversed. The paper explains the significance of this relationship and employs several notable food scholars, such as Felipe Fernandez-Armesto and Antoni Riera-Melis. Throughout the paper I trace their explanation of different foods’ roles in the culture of Don Quixote to the character’s social ascension or demotion.

2:45 | TIFFANY RAPETSKY: SWEET BRIAR COLLEGE

"CAN I CALL HIM CRUSTY? TRANSLATING ANA MARIA MATUTE’S ‘CARNIVALITO’"

This paper examines the progress made in translating ‘Carnavalito’, a short children’s story by Ana Maria Matute, from Spanish into English. It details the crucial knowledge gained by studying first the life and times of Ana Maria Matute, and a selection of her children’s stories, as well as current views from the fields of translation and children’s literature. The discussion then turns to the process of translation, highlighting issues with style, word choice, character's names and the deeper meanings hidden in Matute’s words, and various solutions for these problems are offered. Three main examples are given to demonstrate the process of deciding how to handle these issues while ultimately remaining as loyal as possible to the original text.

3:00 | KATHERINE KURTRESSIS: ROANOKE COLLEGE

THE EMPOWERMENT OF LATIN AMERICAN WOMEN THROUGH STRUGGLE: THE SOCIAL AND POLITICAL EVOLUTION OF CAROLINA MARIA DE JESUS AND VIOLETA CHAMORRO
The progression and advancement of women in Latin America is a constantly evolving process that continues even today. Women face much social and political oppression, but what happens when this oppression is used as a means of empowerment? Two women in particular capitalized on their gender and the repression they faced and used it as a means of political and social evolution. Through this method both women achieved much fame and success. The first, Carolina Maria de Jesus, an impoverished black and single mother from Brazil, published a renowned diary that exposed the struggle of women and the poor. The second, Violeta Barrios de Chamorro became the first female elected head of government in Latin America when she was elected as the president of Nicaragua in 1990.

3: 15 | MICHELLE OJEDA: JAMES MADISON UNIVERSITY

ALICE PAUL AND THE NATIONAL WOMEN’S PARTY: A UNIQUE CAMPAIGN FOR WOMAN SUFFRAGE
In 1913, the woman suffrage movement improved dramatically due to the contributions of Alice Paul. Paul founded the National Women's Party, which was integral in securing passage of the 19th amendment in 1920. Predecessors of Paul, such as Susan B. Anthony and Elizabeth Cady Stanton, could not achieve this mark in over half a century of their work. Most historians argue that it was Paul's employment of military tactics that lead to the enfranchisement of women. However, using material evidence such as photographs and banners from the time period, this paper will argue that Paul succeeded where others had failed because of Paul's unique blend of pacifist tactics and intense activism. Paul’s strong use of visual rhetoric sent messages to President Wilson as well as the average citizens that served as a catalyst to the passage of the 19th amendment.

Session XII

2:00 | NATHANIEL RICHARD ANGLIN: VIRGINIA MILITARY INSTITUTE

CO-AUTHOR: COL. ROSE MARY SHELDON

GUERRILLA WARFARE IN NORTH AFRICA: AN ANCIENT ROMAN EXAMPLE
Renowned military strategist Sun Tzu argued that all warfare involves avoiding the enemy’s strong points and striking where he is weak. In the case of guerrilla warfare the weaker of the two sides must fight after an unconventional war that uses tactics and strategies that equalize or place the conflict in their favor. Many modern authors, however, assert that the use of any warfare other than the head-to-head battles of conventional warfare is treacherous, cowardly and uncivilized. In the case of the ancient Roman war against the illegitimate King of Numidia, Jugurtha, the Romans were dealt defeat after defeat facing an enemy successfully employing guerilla warfare. Finally, after two failed invasions, the Roman General Metellus recognized that he had to apply the same type of warfare against his enemies, dropping the pretense of fighting a traditional conventional war. In this way the Romans defeat Jugurtha and restore Roman dominance.

2:15 | NATHAN PATIN: VIRGINIA COMMONWEALTH UNIVERSITY

UNITED NATIONS INTERIM FORCE IN LEBANON: BACKGROUND, ANALYSIS, AND THEORY
The United Nations Interim Force in Lebanon (UNIFIL) is a peacekeeping force created in March 1978 in order to confirm the withdrawal of Israeli forces from southern Lebanon, restore international peace and security, and assist the Lebanese government in restoring its effective authority. This paper provides a general background of the UNIFIL mission including the identification of the main actors involved, why intervention was deemed necessary, who deemed intervention necessary, and how the UNIFIL mission fits historically with the state of Lebanon. In addition, this paper evaluates UNIFIL based on measures of "success" and "failure." This paper will also apply realist and constructivist logic in order to help explain the motives behind the intervention. Finally, this paper looks at whether or not Lebanon's sovereignty was violated and if so, whether it was justified.

2:30 | PETER FOGARTY: JAMES MADISON UNIVERSITY

THE LIMITATIONS OF A REVOLUTIONARY IDEOLOGY: THE ISSUE OF SLAVERY AT THE CONSTITUTIONAL CONVENTION OF 1787
A detailed reading of the Constitution will reveal the word “slavery” is never mentioned. The absence of the word is misleading, as slavery was one of the most divisive issues discussed during the creation of the Constitution. The arguments were not moral or ethical debates over the institution of slavery, but rather arguments over the continuation of the slave trade, and how slaves would fit into economic and political issues such as taxation and representation. Sectional differences between the northern and southern states were clearly exposed, as both competed for a powerful position in the new government. The convention members had to restrain their revolutionary ideology, and the institution of slavery was a contradiction to this ideology, as economics prevailed over morality, the concept of property triumphed over liberty, and an overwhelming fear of anarchy provided justification for continuation of slavery granted in the Constitution.

2:45 | KATHARINE NEWMAN: MARY BALDWIN COLLEGE

ISLAMIC EXTREMISM: BUILDING BLOCK AND STUMBLING BLOCK FOR SAUDI ARABIA
Since 1954 the Kingdom of Saudi Arabia and the United States government have shared a close if tenuous relationship. Through successive administrations and changes in the political climate, American involvement, interest and investment in the Kingdom has remained, without an official treaty or agreement binding the two nations. Neither the durability nor the longevity of the relationship is remarkable, but rather that it endures even as the Saudi government supports and relies on radical Islamic extremism. As the United States was founded on principles of liberty, equality and freedom, the Kingdom of Saudi Arabia is rooted in bloodshed, tyranny and religious oppression. This paper covers religious extremism in Saudi Arabia from the eighteenth century to the present day and explores why the Kingdom struggles in meaningful confrontation with terrorists and extremists.

3:00 | KELLY MURRAY: JAMES MADISON UNIVERSITY

WHITE VIRGINIA’S REACTION TO THE HAITIAN REVOLUTION
Black slaves on the French colony of Saint Domingue, the largest and wealthiest colony in the world, rebelled against their white slave owners in August 1791. Blacks, mulattoes, and whites engaged in a messy conflict, which led to bloody massacres on all sides. On January 1, 1804, after defeating the two most powerful armies, Saint Domingue declared itself the Republic of Haiti, becoming the first free black nation in the world. Skewed coverage of the revolution in southern newspapers captured white anxieties of the events of the Haitian Revolution. Local slave insurrections, which were perceived to be a direct result of the rebellion in Saint Domingue, caused officials in Virginia to pass laws that further restricted any rights that free blacks possessed and attempted to come up with a plan to deport troublesome slaves, and convinced some to even imagine a future Virginia without slaves or blacks.

3:15 | SONYA THOMAS: JAMES MADISON UNIVERSITY

PLESSY V FERGUSON: THE ILL-FATED BATTLE FOR INEQUALITY
In the mid nineteenth century, race relations between blacks and whites in the South were nothing short of volatile. The issue of segregation was highly contested during this time, eventually resulting in the implementation of Jim Crow laws which forced the separation of the races. This war between the races eventually leads to one of the most controversial and influential Supreme Court cases in American history. The case of Plessy v Ferguson legalized segregation laws and served as a catalyst for an early staged revolt against the injustice of post-Civil War society. This presentation will examine the background leading up to the Plessy decision, the results of the decision and its impact on American views of race and interactions.

Poster Session

1. ARIEL FIREBAUGH: ROANOKE COLLEGE

PIERIS RAPAE (LEPIDOPTERA: PIERIDAE) PERFORMANCE IN RESPONSE TO AN EXOTIC HOST PLANT, ALLIARIA PETIOLATA (BRASSICACEAE)
Understanding the relationship between invasive plants and herbivores (native or non-native) in the introduced range is an important aspect of conservation biology. The small cabbage white (*Pieris rapae*) and garlic mustard (*Alliaria petiolata*) share a common evolutionary past in Europe, however, interactions in North America appear to be limited. I compared the life history dynamics of *P. rapae* on a diet of garlic mustard and a preferred host plant (*Brassica juncea*). *P. rapae* was able to complete its life cycle on garlic mustard, indicating that environmental factors may prevent increased exploitation as a larval food source in the wild. Larvae reared on garlic mustard displayed reduced fitness compared to those reared on mustard greens. Garlic mustard may not nutritionally support optimal larval development, but physiological constraints cannot fully explain the lack of significant *Pieris* herbivory in North America.

2. BRYAN T PIATKOWSKI: ROANOKE COLLEGE  
CO-AUTHORS: BADER, GEOFFREY; POLI, DOROTHYBELLE

STUDYING THE EVOLUTION OF UPTAKE AND EFFLUX OF AUXIN IN LAND PLANT GAMETOPHYTES
While IAA is transported via phloem, it is also unique because it can occur as unidirectional transport termed polar IAA transport (PAT). Previous research involving bryophyte sporophytes has indicated that auxin played a critical role in the development and shape in all land plant sporophytes (Poli et al., 2003). What now needs to be studied is the role of auxin in the development of land plant gametophytes. We hypothesize that the complexity and size of the gametophytic thallus would be a system that dictates a simple auxin transport mechanism. In Riccia fluitans our results suggest that auxin enters the thallus by diffusion, but a facilitated diffusion efflux mechanism exists. Both Anthoceros punctatus and Rhizominum sp. show carrier mediated uptake and efflux. NOA sensitivity (an auxin influx inhibitor) was only found in Rhizominum. NPA (an auxin efflux inhibitor) sensitivity appears to be absent from all species.

3. BENJAMIN M. BROWN: HAMPDEN-SYDNEY COLLEGE

THE ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY OF PALO SANTO ESSENTIAL OIL
Essential oils have been used in many countries as alternative medicines for a variety of ailments and preventative uses. More recently, the use of essential oils has expanded on a large scale to markets in therapy. Essential oils have been praised for their medicinal properties with allergies, rheumatism, arthritis and bronchitis (Abe et al., 2004). However, these properties and their cellular mechanisms have not been extensively researched for many oils. This study investigated the activity of Palo Santo essential oil as an antimicrobial and antioxidant agent. The oil was found to be active against several microbes at concentrations from 50-16.5 mg/disk, using the disk diffusion method, with activity comparable to the common antimicrobial agents tetracycline and nystatin. Its scavenging activity of the stable DPPH radical was 43.21% at 1mg/ml which when compared to the control, .2mM BHA at 69.63% scavenging activity, presents the case that there is profound antioxidant potential.

4. TARENNE UNDERWOOD: ROANOKE COLLEGE  
CO-AUTHOR: CHRISTOPHER LASSITER

EFFECTS OF AN AROMATASE INHIBITOR ON HEART SIZE IN EMBRYONIC ZEBRAFISH (*DANIO RERIO*) USING CARDIAC MYOSIN LIGHT CHAIN-2 (CMLC2)
Aromatase inhibitors block synthesis of estrogen in the body, thereby lowering the levels of estrogen. Embryos were treated with estrogen, an aromatase inhibitor (AI), and a combination of the two for 5 days post fertilization. Embryos were observed for any changes in cardiac heart sac size by measuring length, width, and area of the atrium and ventricle. The AI-treated embryos demonstrated a listless characteristic, or the inability to move, and a swollen heart sac that ultimately lead to fatality. We are currently using in situ hybridization with cardiac myosin light chain-2 to better visualize the heart. Future research will allow for more accurate data to be collected on the effect of hormone levels on the heart.

5. SYDNEY WEBB: ROANOKE COLLEGE
CHARACTERIZATION OF THE EN/SPM FAMILY OF CLASS II TRANSPOSONS WITHIN COPRINUS CINEREUS

We characterized the En/Spm family of DNA transposons within the *Coprinus cinereus* genome. The pFAM domains specific for transposons and eukaryotes were identified using the Wellcome Trust Sanger Institute website, which produced a list of 150 pFAM domains that were used to search the *C. cinereus* genome assembly website. Of the three main transposon families on the list, the En/Spm family contains twelve transposons ranging in size from 4044 to 3468 bp. Further characterization defined the exon and intron lengths, and the locations of the pFAM domains. The upstream and downstream regions of each transposon were analyzed to identify and characterize each transposon’s Terminal Inverted Repeat (TIR) region. However, this was not successful due to the greater variability of the terminal region in fungi as opposed to the conserved region of plants. This characterization is the beginning to understanding the roles of repetitive elements in genome evolution and genome organization.

6.
OSRIC FORREST: HAMPDEN-SYDNEY COLLEGE

THE EFFECT OF THE PRESENCE OF MUCUS ON THE GILLS OF FRESHWATER FISH IN AQUATIC RESPIRATION

The purpose of the experiment was to investigate the respiratory function of the layer of mucus covering the gills of fresh water fish. There is a thick layer of mucus over the gills of some species of fish that may compromise gas exchange. A 5 micrometer thick layer of mucus markedly reduces the gas exchange across gill lamella by adding a non-convective barrier compared to the water boundary layer (Ultsch and Gros 1979). There is a space within the gills called dead space where water that does not come into direct contact with the lamella flows and potential oxygen that could diffuse into the blood is lost. It is expected that a layer of mucus coating the gills of fish will result in an increase flow into the dead space of fish, and as a result decreased absorption of oxygen into the blood stream and in some extreme cases hypoxia.

7.
PAIGE MILLER: UNIVERSITY OF RICHMOND
CO-AUTHOR: W. JOHN HAYDEN

ANTHER STRUCTURE IN THE TOMATILLO, PHYSALIS PHILADELPHICA (SOLANACEAE)

The tomatillo, or husk tomato, is a food plant domesticated in central Mexico. Studies focused on anther structure and development. Standard techniques of tissue preparation were used for both light and scanning electron microscopy. There are five stamens of variable length per flower; filaments are adnate to the corolla. Anthers are tetrasporangiate and become bilocular. The glandular tapetum consists of binucleate cells which disintegrate prior to pollen maturation. Endothecial cells are characterized by band-like thickenings; this layer is one cell thick near the stomium, but increases up to five cells thick in the region of the connective. The stomium consists of cells containing dense deposits of crystal sand, the function of which is unknown. Both functional pollen (plump, rounded grains) and non-functional pollen (shriveled, irregular grains) were observed. Future studies should focus on potential roles of non-functional pollen, stomium-based crystal sand, and nectar in the pollination biology of the tomatillo.

8.
HELEN WOLFE: LYNCHBURG COLLEGE

EFFECTS OF AGE AND TIME OF DAY ON THE DISTRIBUTION OF AN ORB-WEAVING SPIDER ON AN ANT-DEFENDED ACACIA

I studied the use of ant-protected acacia plants by an orb weaving spider (*Eustala oblonga*) in Soberania National Park in Panama. The acacia plant (*Acacia melanocerus*) provides food and shelter for the ant (*Pseudomyrmex satanicus*) in return for ant protection of foliage from plant-feeding animals. Although the ants quickly attack and remove other organisms on the plants, they do not normally attack the spiders. To investigate this further, I censused spiders on acacia plants during the day and at night, recording spider size and location on the plants. At night, the majority of spiders occupied webs, suggesting that their prey is primarily nocturnal. During the day, however, a greater proportion of smaller (immature) spiders occupied their webs relative to larger (mature spiders), which often rested on plant stems and
thorns. The differences in location on the plant occupied by spiders of different sizes may reflect differences in vulnerability to ants.

9. MELAINA MACONE: SWEET BRIAR COLLEGE  
CO-AUTHORS: SASKYA VAN NOHUYS & RAUL F. MEDINA

GEOGRAPHIC POPULATION STRUCTURE OF THE SPECIALIST PARASITOID HYPOSOTER HORTICOLA AND ITS HYPERPARASITOID MESOCHORUS SP. CF. STIGMATICUS IN THE ÅLAND ISLANDS, FINLAND

The Glanville fritillary butterfly, Melitaea cinxia (Lepidoptera: Nymphalidae), is native to the Åland Islands (located between south-western Finland and eastern Sweden) and is the only known host for the specialist parasitoid, Hyposoter horticola (Hymenoptera: Ichneumonidae). H. horticola has a relatively high dispersal rate (dispersing up to 5 km while seeking hosts). In this study we are investigating the population structure of H. horticola and M. stigmaticus based on geographic distribution throughout the Åland Islands using AFLP markers. We hypothesize that H. horticola populations will be lacking structure in their particular regions because of its relatively high gene flow. Alternately, we hypothesize that M. stigmaticus will have a more structured population than H. horticola because of its generalist behavior that allows it to remain in one geographic region. Understanding the nature of population structure in parasitoids and their hyperparasitoids is crucial for designing conservation and biocontrol strategies.

10. JOSH S. HORAN: FERRUM COLLEGE  
CO-AUTHORS: HANNA MARTIN & NATALIA SMELKOVA

CHEMISTRY AND HEALTH OF A MINI-ECOSYSTEM

A fresh water mini-ecosystem can be used as a model for addressing questions on the state of health of the community of living organisms as a measure of water quality. Shortly after setting up our mini-ecosystem we noticed that it started gradually deteriorating: plant growth became slow and as a result we lost several species of plants. Also, at the same time we observed significant decline in health of most fish in the tank, and even their death. Therefore, our model clearly demonstrated that enhancement of plant growth significantly improved health of the entire mini-ecosystem, which also showed how tight all the components of a bionetwork are connected to each other.

11. KEVIN CARLSON: ROANOKE COLLEGE

INVESTIGATING THE ROLE OF TYROSINE AT POSITION 123 IN THE ENZYME 5,10-METHENYL-TETRAHYDROFOLATE SYNTHETASE

The enzyme 5, 10- methenyltetrahydrofolate synthetase(MTHFS) is used to catalyze the reaction of folinic acid and ATP to 5,10-methenyltetrahydrofolate. The enzyme has been studied previously by changing an amino acid at one position to alanine. In this experiment the amino acid, tyrosine at position 123, was changed to alanine. Tyrosine likely interacts with folinic acid through hydrogen bonding, so changing it to alanine would remove the strong intermolecular force, thus reducing KM, the binding constant, and reducing the value of Kcat, the rate of turnover of the enzyme. MTHFS was isolated using metal affinity chromatography, and size exclusion chromatography. Michaelis-Menten kinetics were used to determine the values of KM and Kcat, however, due to unexplainable background activity, these values were unobtainable. It was shown, however, that when compared to the wild type enzyme the mutant had less activity.

12. KELSEY A. SLOAN: ROANOKE COLLEGE  
CO-AUTHOR: DR. JACK STEEHLER

ANALYSIS OF PERFLUORINATED ORGANIC COMPOUNDS (PFOC'S)

Perfluorinated compounds are thought to pose a health-risk for humans and can be found in coated cookware, food wrappings, paint, electronics, environmental water sampling, and the air. This experiment used gas chromatography-mass spectroscopy (GC-MS) to analyze coated cookware samples. Methods
were developed over the course of this study to analyze samples thought to have perfluorinated compounds present.

13. 
ROSHA POUDYAL: RANDOLPH COLLEGE  
CO-AUTHORS: POOJAN PYAKUREL & DR. KURT SEIDMAN

A THEORETICAL INVESTIGATION OF CARCINOGENICITY OF POLYCYCLIC AROMATIC HYDROCARBONS (PAH) AND THE EFFECT OF METHYLATION: ONE-ELECTRON OXIDATION MECHANISM

PAHs are ubiquitous in the environment and have been associated with cancer for centuries. Nonetheless, not all PAHs are carcinogenic. Several mechanisms have been proposed to explain the carcinogenicity of PAHs, including one-electron oxidation. However, the mechanism for one-electron oxidation in methylated PAHs is distinctive from one-electron oxidation in unmethylated PAHs. Several structural, geometric and electronic features of PAHs account for their carcinogenicity. This paper illustrates a theoretical investigation of one-electron oxidation in methylated PAHs and its relationship with charge (de)localization on the ring system and methyl carbon, the strain on the ring system, and the energy change accompanying each step of the mechanism. It has been concluded that methylation does not influence the delocalization of charge on the ring system, irrespective of the position of the methyl carbon. The location of the methyl carbon has a significant influence of the energetics of the oxidation.

14. 
LAURA HANOLD: SWEET BRIAR COLLEGE  
CO-AUTHORS: SARAH MCLEMORE, JESSICA UNGERMANN, MEGAN COMBS, JESSICA SOLER

THE SYNTHESIS AND PHOTOCHEMISTRY OF 3(2H)-FURANONES

The purpose of this research was to synthesize 3(2H)-furanones and study their medicinal and photochemical properties. This research was inspired by the recent discovery of inotilone, a selective COX-2 inhibitor containing a 3(2H)-furanone core. Such medicinal properties are common in 3(2H)-furanones, making them potential candidates for medicinal testing. Thus, an inotilone derivative, 2-benzyldiene-5-methyl-3(2H)-furanone, was successfully synthesized in an overall yield of 1.9%. Anticancer and antibacterial tests were performed on this compound, with tentative results that demonstrate activity against C. pseudodiphtheriticum. Previous studies indicate that 3(2H)-furanones are photoreactive. In order to further explore the reactivity of the furanone core, 5-phenyl-3(2H)-furanone and 2,2-dimethyl-5-(4'-carbomethoxy-3(2H)-furanone were synthesized and subsequently irradiated at 300 nm. Proton NMR analysis of the photoproducts revealed that dimerization occurred, in contrast to photo rearrangement.

15. 
ROBBIE KARIM: ROANOKE COLLEGE  
CO-AUTHOR: DR. VERNON MILLER

SYNTHESIS OF BORON CATIONS FROM TRIMETHYLMAMEIODOBORANE AND AROMATIC AMINES

Two bisamine boron cations were produced over the course of this research, dihydro(bipyridine)boron(1+) and dihydro-2,2'-dipyridylamineboron(1+). These compounds were prepared using a similar method described by G.E. Ryschkewitsch et al. with all of the reactions taking place at room temperature. The two boronium salt compounds were characterized using a combination of 1H NMR, 11B NMR, and IR spectroscopy. Two other bipyridine compounds were studied with were orthophenanthroline and 2,2'-dipyridylketone. The NMR spectra of the orthophenanthroline reaction contained slight evidence that a dihydro(1,10-phenanthroline)boron(1+) had been produced but in small amounts. The 2,2'-dipyridylketone compound was determined to not have successfully reacted with the amine iodoborane compound.

16. 
JARED BRANIN: ROANOKE COLLEGE

INVESTIGATIONS INTO THE ROLE OF THE ASPARTATE AT POSITION 124 IN THE ACTIVE SITE OF 5,10-METHENYL TETRAHYDROFOLATE SYNTHETASE
Folates are vitamins that are important for many of the biochemical reactions that take place within our cells. Without folates, our bodies would be unable to synthesize or repair molecules such as proteins, DNA, or ATP. With that said, there are a number of proteins in our cells responsible for catalyzing the formation of folate molecules. This research investigates amino acids in the active site of the protein 5,10-methenyltetrahydrofolate synthetase (commonly referred to as MTHFS). One should note, this protein is responsible for converting 5-formyltetrahydrofolate (a stored form of folate) into 5,10-methenyltetrahydrofolate (a more active form). However, this work is specific in that it only addresses the aspartate amino acid at the 124th position of the MTHFS enzyme. This was accomplished by changing this aspartate amino acid to alanine (a non-functional amino acid). Once the mutant protein was synthesized (and purified), it was characterized using kinetics.

17. ANEESH GOEL & LEONID B. RESHKO: VIRGINIA COMMONWEALTH UNIVERSITY
CO-AUTHORS: FREDERICK HAN MD†, MELISSA LAU BA§, MARK WOOD MD†
†VCU MEDICAL CENTER DIVISION OF CARDIOLOGY, §VCU SCHOOL OF MEDICINE, RICHMOND, VA

LETHAL MYOCARDIAL ISOTHERM TEMPERATURE DURING RADIOFREQUENCY CATHETER ABLATION

Introduction: Radiofrequency (RF) catheter ablation cures many cardiac arrhythmias by heat-induced injury to arrhythmogenic tissue. This study investigates the lethal isotherm in porcine ventricular myocardium preparation.

Methods and Results: RF lesions were delivered to isolated porcine myocardial tissue in a saline bath (37°C) using a closed-irrigation RF ablation catheter. Infrared (IR) images were taken at the end of the RF energy delivery. Optical images were taken after lesion staining (2% triphenyltetrazolium chloride) to delineate viable from non-viable tissue. The lethal isotherm was determined by an image fusion overlay of optical and thermal images to determine the temperature corresponding to the edge of the lesion. The average IR isotherm was found to be 59.7°C ± 5.79°C, while the average lesion temperature was 58.9°C ± 3.08°C. Conclusion: These results suggest that the lethal isotherm in RF cardiac ablations is 59–60°C, which is much higher than the previously accepted temperature of 48-50°C.

18. HANNA M. MARTIN: FERRUM COLLEGE
CO-AUTHORS: JOSH HORAN & NATALIA SMELKOVA

PCR AND MDA (MULTIPLE DISPLACEMENT AMPLIFICATION) AS TWO LEADING METHODS OF DNA AMPLIFICATION

PCR is a widely used DNA amplification technique, which requires a multi-thermal cycler. Occasional errors during DNA replication impose limits on the production of DNA, as well as the size of produced DNA molecules. In recent years MDA (Multiple displacement amplification), a PCR analog has emerged. This method allows a quick and simple isothermal amplification of large quantities of DNA for genomic analysis, and many other molecular biology techniques. This is a powerful, easy and efficient tool of DNA amplification for samples, such as uncultured microorganism or single cells to the amount that would be sufficient for sequencing studies. Due to high efficiency of DNA polymerase used in MDA, the reaction produces a high quality DNA with less error and much longer molecules, making this method one of the most favorable of all DNA amplification methods available today.

19. ASHLEY ELIZABETH SMITH: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHORS: JOSEPH BECKER, CASEY BEATLEY, MORGAN COTE-COBLE, CHRISTY PHILYAW, ROB MICHEL, KATRINA HALLWERCK, AND ANDREW VELKEY

SEX DIFFERENCES IN IMPULSIVE RESPONDING BY SIAMESE FIGHTING FISH (BETTA SPLENDENS)

As animals explore their environment in search of food, they often encounter choices between smaller but immediately available resources (i.e. impulsiveness) and larger but delayed resources (i.e. self-control). While past research has examined the effects of various factors (e.g. adjusting delay, caloric expenditure) on impulsive choice in a variety of species, little work has been conducted on sex differences in these choice distributions, especially in teleost species. In the current study, we examined the instrumental choice behavior of 25 Betta splendens, 13 males and 12 females. Over several 3-week series of
instrumental trials, each subject had a choice of a smaller-sooner reward or a larger-later reward. Results revealed sex differences in choice responses and instrumental response latencies; significantly more male Bettas stabilized on the larger-later choice, while significantly more female Bettas stabilized on the smaller-sooner choice. Results are discussed in relationship to territoriality and mate selection processes in Betta Splendens.

20.
LAURA BERG: MARY BALDWIN COLLEGE

THE EFFECTS OF PRENATAL EXPOSURE TO SALVINORIN A ON ADULT ANXIETY AND AGGRESSION IN SWISS MICE
In Spring 2008, Swiss mouse pups were prenatally exposed to Salvinorin A (Salvia divinorum) in order to identify teratological effects in the mouse pups, their weight, body temperature, and vocalizations through the first 11 days of life. In July, 2008, these mice were tested for changes in aggression and anxiety as a result of the drug treatment. This study found no significant difference between the control adult mice and the drug adult mice; however it also did not find an expected sex difference in these two attributes. This study suggests that Salvinorin A may produce changes in behavior; however, there are other confounding variables not considered and therefore no long term effects on behavior.

21.
SHI HUA: RANDOLPH COLLEGE
CO-AUTHORS: DENNIS GOFF, JILLIAN BARLOWE

FINGER DIGIT RATIO AS A PREDICTOR OF MENTAL ROTATION ABILITY AND TOY PREFERENCE AMONG ADULTS
Finger length ratio is the ratio between the second and fourth finger. Digit ratio or 2D:4D is related to prenatal androgen exposure. Digit ratio is a sexually dimorphic trait. The current study is an extension of work by Crippen (2008) in which she measured digit ratio, mental rotation and toy preference in pre-school age children. We sought to further understand the relationship between these variables in an adult population. Digit ratio was expected to correlate negatively with mental rotation, but a significant positive relationship was found. However, as expected, a significant relationship between digit ratio and masculine-typed toy preference was observed. Specifically, females with low digit ratios were more likely to exhibit masculine-typed toy preferences.

22.
JANNEDRA’ WILLIAMS: CHRISTOPHER NEWPORT UNIVERSITY

CREATIVITY AND COGNITIVE FLEXIBILITY
We are investigating the relationship between creativity [producing something that is both novel and worthwhile (Plucker, Dow Beghetto, 2004)], and cognitive flexibility [restructuring knowledge to promote task shifting (Spiro et al. 1995)]. Our preliminary analysis of 43 participants yielded a significant pattern of results between cognitive flexibility and creativity. Subsequently, we will disentangle the measures of cognitive flexibility and creativity to account for both verbal and spatial performance by employing the Torrance Test of Creativity, the Wisconsin Card Sorting Task, The Stanford Binet’s Paper Folding and Cutting Task, and the Shipley Vocabulary Test. We expect that creativity and cognitive flexibility will be significantly related and moderated by cognitive ability. Complete results, implications, and limitations will be discussed.

23.
RANDY ROSENBERG: CHRISTOPHER NEWPORT UNIVERSITY

PERSON-ENVIRONMENT FIT STRESS MODEL AS RELEVANT TO TODAY’S AMERICAN UNEMPLOYED WORKER: WHO WILL DO OR DIE IN THE MIDST OF GLOBAL ECONOMY
The present research examines stress in the workplace, specifically pertaining to the Person-Environment (P-E) fit stress model. The P-E fit model is a cognitive appraisal based theory that describes an individual’s stress level in terms of the degree to which individual “fits” into his/her environment. P-E fit defines stress as a lack of compatibility between the characteristics of a given individual and the
characteristics of his environment. The model corresponds to the workplace in terms of the degree to which an individual’s knowledge, skills, and abilities are required to compensate for the demands of his/her particular job. The P-E fit model will be discussed within the context of the new global economy and employment strategies. In other words, how do workers “fit” when jobs and factories are moved overseas to foreign nations?

24.
JENNIFER GAMBLE, BEN ROSEBERRY, STEPHANIE KOFRON, SARAH WHITE, ANDREW HARTZLER, AND ANGELA TOSCANO: CHRISTOPHER NEWPORT UNIVERSITY

AN EXAMINATION OF RELIGION, SPIRITUALITY, EMOTIONS, AND COPING

Previous research has shown that negative emotions fade faster than positive emotions, and this occurrence is called the Fading Affect Bias (FAB). The current study will examine the relation of the FAB for religious and non-religious events in religious and non-religious participants. Participants will receive an informed consent form and respond to basic demographic questions. In phase one, participants will receive measures of positive and negative affect, personality, social desirability, depression, religiousness and spiritual transcendence. In phase two, participants will complete a combined FAB and religious coping questionnaire. The current study will contribute to both FAB and religious coping research and potentially link the two areas of study.

25.
LINSEY QUARLES: CHRISTOPHER NEWPORT UNIVERSITY

THE PSYCHOLOGY OF COMPASSION FATIGUE

Compassion fatigue is the reduced capacity to feel empathetic for clients and is the natural reaction to working with clients who have experienced trauma (Boscarino, Figley, & Adams, 2004). Typically measured with the Compassion Fatigue Self Test (CFST), compassion fatigue can be an obstacle that many professionals in the medical and mental health field are likely to face at one point in their careers (Figley, 1995). While research has shown that empathy is positively correlated with compassion fatigue, few studies have examined the personality traits which may predict the extent to which professionals are likely to experience compassion fatigue. Another point of future research could look at the extent to which professionals who report compassion fatigue also report a high tendency to take the client’s perspective.

26.
DANIELLE JAGODA & CRISTINA VALDIVIESO: LONGWOOD UNIVERSITY

HOW ATTRACTIVE ARE YOU? INDIVIDUALS SENSITIVITY TO NUMBER OF SEXUAL PARTNERS

We investigated whether the number of sexual partners an individual had effected how attractive others perceived them. We instructed participants to read a brief description of a male or female, depending on the sex of the participant. There were three groups of descriptions, one with a higher number of sexual partners, one with a lower number of sexual partners, and one with no mention of sexual partners at all. The participants then filled out a survey based on how they perceived the individual. Results showed that there was no significant difference between the number of sexual partners and the participant’s ratings on the individual’s attractiveness. However, there was a positive correlation between the number of sexual partners the participants had and whether or not they would engage in unprotected sexual activity. This suggests that individuals with higher numbers of sexual partners could be more likely to participate in risky behaviors.

29.
WHITNEY KAILOS: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHOR: JULIA Q. BANCROFT

THE EFFECTS OF NUTRITIONAL KNOWLEDGE AND FOOD PERCEPTION ON COLLEGE-AGE WOMEN’S BODY IMAGE

The current theoretical model will integrate past research which demonstrated the relation between societal, personal, and familial influences and the effect on women’s eating patterns. The new model will amalgamate the differential schemas of an individual’s self-image based on their current level of
nutritional health knowledge as well as their visual perception of different displays of food options (i.e., meals). The theory will concentrate on whether an individual that perceives nutritional food choices and has vast nutritional knowledge actually has a better body-image as opposed to an individual with select nutritional knowledge and visual perception. The study incorporates lessons learned from field research (i.e., School Health Intuitive Program under the Student Wellness Council) with current clinical theory and research.

30. KRISTIN A. VDORICK: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHORS: JACQUELINE MCCORMICK, JILLIAN CRAMPTON

INVESTIGATING THE EFFECTIVENESS AND CONSTRAINTS OF VISUAL AND AUDITORY EXAMPLES ON CREATIVITY AND PROBLEM SOLVING
The main goal of this project was to examine the impact of presenting examples on creativity and problem solving tasks. Fifteen pilot subjects completed three creative generative tasks. In task one, participants drew an alien creature; in task two participants generated new words for a product (e.g., a pain reliever); and in task three participants redesigned a measuring cup for a visually impaired person. For each task participants were either presented with a visual example, auditory example, or no example. Participants also complete the Remote Associates Test of creativity. As expected, participants are carrying over the key features found in the examples to their own productions thus establishing the trend of participants becoming fixated on the examples and yielding less creative original creations.

31. DANIEL R. MITTEER: CHRISTOPHER NEWPORT UNIVERSITY

THE ABRUPT DESTRUCTION OF VALUES: REDISCOVERING A PHENOMENON
Much has been written concerning gradual modification of beliefs and principles (Cleary, A., & Brannick, T., 2007; Coffield, K., & Buckalew, L., 1984), yet the topic validated by values expert Milton Rokeach as “the abrupt destruction of values” (1979) remains relatively untouched by researchers. While Rokeach himself acknowledges the existence of the rare phenomenon in which an event may spark the ruination of a longstanding personal belief, there exists no further discussion on the matter. This analysis taps into these atypical experiences, drawing on research to isolate specific contexts that precipitate the abrupt destruction of values.

32. RUTH YEH: CHRISTOPHER NEWPORT UNIVERSITY

THE FIVE FACTOR MODEL OF PERSONALITY: A LITERATURE REVIEW
The Five Factor model of personality has been a prevalent and often referenced model in contemporary psychology. This is a literature review on theoretical and empirical work regarding the Five Factor model, specifically the discrepancies between the theoretical models of McCrae and Costa (1992) and Goldberg (1990). The five factors have been applied to various psychological disorders (Costa & McCrae, 1992; Trull & McCrae, 2002), from pathological gambling (Bagby et al., 2007) to anorexia nervosa (Bollen & Wojciechowski, 2004; Claes et al., 2006). Measures, such as the NEO PI-R (Costa & McCrae, 1992) and the Big Five Inventory (John, Donahue, & Kentle, 1991), are constantly reexamined to insure accurate identification and appraisal of these constructs of personality. The current review covers the history of the model, examines popular theoretical arguments, compares measures of the model, and explores the direction of future research on this important subject matter.

33. AMANDA POWELL: CHRISTOPHER NEWPORT UNIVERSITY

HOARDING: A LITERATURE REVIEW
Hoarding is a subtype of an obsessive-compulsive disorder, which is categorized as an individual’s massive ‘acquisition of and failure to discard possessions’ (Wilbram, et al., 2008; Maina, et al., 2007. Compulsive hoarders are characterized as having an emotional attachment to possessions, poor memory, a need for control, and feelings of responsibility over possessions (Steketee, 2003. The
individual feels shame and/or distress from hoarding, has an uncontrollable attachment to the possessions, and becomes dysfunctional in “normal” life (Kellett, 2007). Compulsive hoarding not only inflicts suffering on the individual but also personal relationships can become strained or even marginalized (Wilbram et al., 2008). Hoarding is an understudied maladaptive behavior within society. Compulsive hoarders account for 20-30% of individuals suffering from obsessive-compulsive disorders (Frost & Hartl, 1996; Samuels, et al., 2002). Further research could help expand the understanding of how and why compulsive hoarding occurs and secure successful treatment options for sufferers.

34. STEPHANIE ARDINGER: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHOR: EMMA MEHRABI
COLOR-SHAPE CONGRUITY AND INTERHEMISPHERIC INTERACTION
The present research examined the effects of shape-color congruity on interhemispheric collaboration using fruit and vegetable stimuli. Observers were presented with three stimuli, two located above the point of eye fixation (one to each visual field) and the third located below the point of fixation (to one visual field). Across four different conditions, observers indicated whether the bottom stimulus matched either of the top two stimuli: (1) match black-and-white stimuli, (2) match shape-color congruent stimuli (e.g., red apple), (3) match shape-color incongruent stimuli based on shape (e.g., blue apple), and (3) match shape-color incongruent stimuli based on color. The critical comparison involved trials on which the two matching stimuli project to the same visual field (within-hemispheric) versus trials on which the two matching stimuli project to opposite visual fields (across-hemispheric). We found a within hemisphere advantage for all conditions, indicating that intrahemispheric processing was sufficient for these tasks.

35. IAN MUSE: CHRISTOPHER NEWPORT UNIVERSITY
THE EFFECTS OF CONTEXT ON PEOPLE’S RELIGIOSITY: A MOTIVATIONAL APPROACH TO SEEKING THE ONE
This paper explores the context dependent circumstances of potential followers and seekers of a divine savior or guide. Motivational factors embedded in a society (deprivations vs. luxuries; hunger vs. satiety) are considered important to how people seek or not divine interventions and beliefs. A theoretical model is proposed to explain differences in how cultures over time have proposed different levels of belief seeking as opposed to self reliant or centered practices.

36. RALUCA ELENA BRAND: CHRISTOPHER NEWPORT UNIVERSITY
CO-AUTHOR: MELISSA MARAZZI
THE EFFECT OF CONGRUENT AND INCONGRUENT IMAGES ON BELIEVABILITY AND RECOGNITION OF NEWS HEADLINES
The purpose of the current experiment is to examine the believability and recognition of news headlines presented with congruent and incongruent images. Previous research examined the recognition of a news headline without a paired image. Studies showed that familiarity of information increases recognition, indicating that the more exposure to a headline an individual receives, the likelihood that the headline will be recognized as opposed to receiving a single exposure increases. Past research has not yet studied the effects of an image on the headline’s believability and recognition. Therefore, the current study seeks to examine the effect of congruent and incongruent images paired with news headlines.

37. MARYANNE HASLOW-HALL: SWEET BRIAR COLLEGE
DEVELOPING A LOW COST AND EASILY MANUFACTURED PROSTHETIC HAND
The subject of my research is the development of a prosthetic hand. The loss of a limb can be a life-changing event that can cause grief and decreased self-esteem. The ability to restore functionality and cosmetic appearance to a limb deficient person can be a challenging yet rewarding pursuit. The subject of my research is the development of a prosthetic hand that is low cost, functional and aesthetically
pleasing. The goal of this research is to develop a hand that satisfies the criteria mentioned above and enables the user to pick up and manipulate small objects. This prosthetic will present a low cost alternative for those who may be unable to afford expensive, state of the art prosthetics. Presented is the proposed design of the hand along with a detailed description of materials used and movement functions.

38.
JOCK PFLUG: WASHINGTON AND LEE UNIVERSITY
CO-AUTHORS: STEPHEN J. KALISTA, JR. & RUSSELL J. VARLEY

FACTORS THAT AFFECT SELF-HEALING IN POLY(ETHYLENE-CO-METHACRYLIC ACID) COPOLYMERS AND IONOMERS
A certain class of ionic polymers shows a unique, inherent ability to heal upon ballistic puncture. This behavior is believed to be the result of a complex thermomechanical response. As a result, the main goals of this study were to examine the effect of temperature, aging, and ionic content on healing and to probe the relationship between mechanical properties and the healing response. Four poly(ethylene-co-methacrylic acid) copolymers containing varying concentrations of ionic neutralization were examined. Tensile tests provided a comparison of bulk mechanical properties for each material. Ballistic testing and differential scanning calorimetry were performed on each material over a maximum temperature range of -50 °C to 140 °C and a maximum age range of one day to approximately six months yielding a greater understanding of material changes with time and temperature and were correlated to the resulting ballistic response. Comparison of results showed that ionic content, aging, and temperature had significant effects on self-healing.

39.
AMOS SHENK: ROANOKE COLLEGE

KINEMATICS, PHYSIOLOGICAL LOAD, AND PERCEIVED EXERTION WHILE WALKING WITH AND WITHOUT HIKING POLES
Even though humans appear to reap benefits from using hiking poles while walking the actual kinematic, physiological, and psychological differences remain unclear. Unlike previous investigations, this initial study examined a large proportion of walking speeds (1.5 to 4.0 mph) in order to map the entire range of responses to walking with or without poles across level terrain (0% grade). For this experiment, physiological (heart rate, VO2, and respiratory rate), psychological (perceived exertion and comfort level), and kinematic data were collected. Several physiological measures, including oxygen consumption (VO2) and respiratory rate, were significantly different between pole and no pole conditions and across speeds. In addition, as walking rate increased, a subjects’ rating of perceived exertion (effort) increased linearly while their rating of comfort (mood) decreased. Finally, while walking with poles humans couple foot and pole contact systematically in space and time.

40.
NANCY DREW: SWEET BRIAR COLLEGE
CO-AUTHORS: SERI LINK, HENNING MORTVEIT, AND MELISSA WASILEWSKI

NETWORK MODELS FOR INFLUENZA SPREAD AND INTERVENTIONS IN SCHOOLS
The majority of disease-spread models developed use differential equations to describe compartmentalized models. However, these models assume a homogeneous mixing of individuals, making it challenging to study realistic interventions. In order to construct a more accurate model, focused on high school students, class schedule data was gathered to construct realistic high school social contact graphs. Simulations show that contact structure and disease transmission in schools influence disease dynamics and epidemic sizes (Reichert et al., 2001). To study spread of disease with these contact graphs, an S.E.I.R. model was used. By changing parameters such as the probability of infection, and duration of time spent in exposed and infectious states, the spread of other diseases can also be studied. The effects of interventions were measured by changes in degree distributions, clustering coefficients, and S.E.I.R. dynamics. It was found that interventions lowered the average degree, and decreased the severity of the epidemic.
41. JONATHAN R. HORNE: VIRGINIA MILITARY INSTITUTE  
CO-AUTHOR: BRYANT YOUNGBLOOD

MATHEMATICAL MODEL OF THE YELLOW FEVER VIRUS
Mathematical modeling has been used for years to study the spread of diseases throughout a population. The virus Yellow Fever has grown to be very problematic throughout Africa and South America and slowly continues to spread throughout various countries. Mathematical models can vary in their complexities and the characteristics of the specific disease will determine the model that must be used. The classical model known as the MSEIR uses each letter as an acronym to explain the various subclasses of the infected population. Based on the disease characteristics there are other models that stem from the classical MSEIR. Variations of the MSEIR include the SIR and SI models, both considered suitable for the study of the Yellow Fever Virus. However, the SIR model is more appropriate for the spread of the virus through humans and the SI model is more specific to the mosquito vectors that spread the virus throughout various populations.

42. MATHEW POTTS: ROANOKE COLLEGE  
CO-AUTHOR: MATTHEW C. FLEENOR

ORIGINS OF A GALAXY GROUP IN ABEll CLUSTER 3128
We present the results of a multiwavelength investigation carried out on a group of galaxies, close in spatial and kinematical space, in the cluster of galaxies Abell 3128. Using optical spectrophotometry for seven galaxies in combination with recent high-resolution X-ray imaging, we comment on the legitimacy of the physical association of these galaxies as well as the group's possible origins. Photometric data was utilized to confirm the color correlation of the galaxies in the group to the rest of the cluster. Hickson's compact group criteria were also used to determine that the group's status as "compact" is ambiguous. X-ray analysis also showed that the X-ray gas temperature was more characteristic of clusters rather than a true compact group. These observations, and correlating redshifts, help provide evidence that the group may not be a recent infalling compact group as previously suggested, but rather a remnant of a foundational merging event.

43. PAUL VINES: ROANOKE COLLEGE  
CO-AUTHOR: DR. BALASUBRAMANIAN

Y-JUNCTIONS IN CARBON NANOTUBES
This research investigates synthesis of carbon nanotubes with Y-junctions. Previously these have been achieved by additional non-Fe catalysts in Chemical Vapor Deposition or nanowelding techniques. This paper investigates use of the iron oxide, maghemite, as the sole catalyst and its production of Y-junction nanotubes.

44. MARJA COPELAND: RANDOLPH COLLEGE  
CO-AUTHORS: TATIANA GILSTRAP, PEGGY SCHIMMOELLER, PETER SHELDON

HANDS-ON INQUIRY SCIENCE FOR IMPROVING TEACHER QUALITY AND STUDENT ACHIEVEMENT
We are creating K-8 lesson plans and content for hands-on and inquiry-based classrooms that will eliminate stereotypes that children hold about scientists and increase interest in studying science. We have been working with teachers to implement lessons in the classroom, and have been studying the effects on students' and teachers' attitudes. This ongoing research project includes a website, The new Science Teacher (http://tnst.randolphcollege.edu), that we are continuing to enhance with videos of children involved in discovery lessons that teachers can emulate in the classroom. This past summer, students involved in our weeklong summer science camp were given the Draw a Scientist assessment pre and post test. Though there was no significant difference pre and post test when the drawings were analyzed there were individual differences. Many of the children drew less stereotypical drawings at the end of the camp. In addition, the children were engaged in the activities and on-task.
46. DASHAWN WHITE: CHRISTOPHER NEWPORT UNIVERSITY  
CO-AUTHOR: RUTH YEH

THE EFFECTS OF DANCE MOVEMENT THERAPY ON CHILDREN WITH AGGRESSIVE BEHAVIORS
Dance therapy has been defined by the American Dance Therapy Association, as the psychotherapeutic use of movement as a process which furthers the physical and psychic integration of an individual and it seeks to combine the expressive and creative aspect of dance with insights of psychotherapy (Jones, 1992). There has been a considerable amount of research in regards to the effects of dance movement therapy on children with aggressive behaviors, such as children with autism. Dance movement therapy has been implemented through various forms such as therapeutic contracts and group therapy. This research can have significant effects in various communities that may not have ever been exposed to this type of therapy. There are many individuals who are not able to articulate their reasons for aggression and dance movement therapy can be an outlet to which they are able to do so and this will be a review of that literature.

47. MAGGIE MAE NASE: SWEET BRIAR COLLEGE

THE DAISY PROJECT: TURNING SPECULATIVE FACT INTO A SCHOLARLY BIOGRAPHY
Sweet Briar College was created in the memory of Daisy Williams, who died at the age of 16 in 1884. While a biography of Daisy does exist, much of the information is speculative and in need citation. In addition, new information—such as more of Daisy's personal writings and belongings—has been discovered. I have organized Daisy's papers in a finding aid for Sweet Briar's archives and am in the midst of writing a new scholarly biography for the Sweet Briar Museum.

48. AMY NICHOLS: RADFORD UNIVERSITY

MONSTROUS RACES AND ALTERITY IN MEDIEVAL MAPS
During the Middle Ages, myths of monsters flourished, appearing in literature and art. Although quite real to Medieval Christians, these monstrous races did not actually exist; but Jews, Muslims, Mongols and Africans— all deemed “monstrous” — did. Medieval geography placed Jerusalem at the center of the world, with non-Christians on the periphery. In the Middle Ages, maps were not designed to accurately depict geographic reference, but to relay ideas about theology and cosmology, instructing the Medieval Christian about the world around them. Since monsters and monstrous races are, in some sense, reflections of the human image, they can provide insight into the culture that created them. These races appear group together in southern Africa in both the Hereford Map and in a Medieval Psalter Map. Using these primary source images as a case study, I will elucidate how monsters help define humanity through alterity.

49. SARAH STRAPP: SWEET BRIAR COLLEGE

SCRIPTORIUM: THE MAKINGS OF AN APPRENTICE
My research project was exploring and experimenting with 12th to 15th century manuscript production in Europe. I practiced the techniques including the manufacture of papers, inks, and paints in historically accurate methods. I applied these skills by making replicas of manuscript pages from selected texts: one in Latin, one in Arabic, and one in Hebrew. I documented my work through a journal and photographs as well as a brief paper.