Session I

9:45 | Crystal Moorman: Lynchburg College  
Co-author: Michael Simon

Analysis of Stellar Spectra for Selected Young Moving Group Candidates
The focus of this project is to determine whether particular low mass field stars may be identified as members of nearby, young moving groups. We begin with an analysis of stellar spectra for late, main sequence stars. Of the spectra analyzed, we are interested in those stars that are strong X-ray sources and display strong H-alpha emission lines. H-alpha line emission and X-ray emission typically indicate stellar youth. Using the public, astronomical database, SIMBAD, we determine the hardness ratios of the stars with X-ray emission and compare these ratios to those of previously identified members of nearby young moving groups. We use IDL to compare the hardness ratios of field stars to those of identified moving group members found in earlier research. We determine the X-ray luminosity and bolometric luminosity of each candidate star to determine each star's absolute visual magnitude, and thus, each star's bolometric magnitude.

10:00 | Steven Nunnally: Roanoke College

Presence in Immersive Environments
Presence is currently not measurable objectively. Only subjective measures, like presence questionnaires, have been proven to work by comparing and ranking the tested Virtual Environments. An objective measurement is based on subconscious thought, therefore it would be reliable and would have the ability to compare Virtual Environments outside of the experiment based on other similar experiments. Postural sway is the theory that participants in an experiment will react to an event in a Virtual Environment with more magnitude if the Virtual Environment has a higher level of presence. The experiment outlined in this paper uses the reaction to centrifugal force as the event, and records the users sway in relation to their turning radius. This method would work for an Virtual Environment that is used for navigational purposes, opening up an objective comparison of presence among all of these environments.

10:15 | Sheena Clift and Jessica Watson: Christopher Newport University  
Co-authors: Daniel Swale, Megan Houck, Geoffrey C. Klein, and Lisa S. Webb

Development of a Standard Method for the Quantification of Amino Acids in Complex Mixtures by Gas Chromatography Mass Spectrometry
Daniel Swale and Megan Houck derivatized and analyzed five of the alpha amino acids (AA) using conventional Gas Chromatography Mass Spectrometry techniques (GC-MS). Because AAs are multifunctional, they are difficult to analyze by a single technique; however, they can be derivatized using N-tert-butyldimethylsilyl-N-methyltrifluoroacetemide (MTBSTFA). This derivatizing agent attaches to nitrogen and oxygen sites on the AAs, and create suitably volatile compounds for use with GC-MS. Fragmentation occurs at similar cleavage sites for all AAs, allowing for quick and easy identification of each of the separated peaks in the gas chromatogram. Current research is being conducted to separate and quantify the fifteen remaining alpha AAs using this method. Future plans include using these techniques to quantify AAs in complex biological matrices, such as the proteins found in meat.

10:30 | Rebika Shrestha: Randolph College

Correlation Of Lead Concentration In Soil with Architectural Risk Factors
In the fall of 2006, a team of students and professors from Randolph College and Lynchburg College started a collaborative project on the lead-analysis of residential soil in downtown Lynchburg. Over 500 samples from a total of 59 sites were collected over two years. The samples were prepared by micro-wave assisted acid digestion and analyzed by atomic absorption spectroscopy, as described in EPA method 3051. The concentration of lead in residential soils showed strong correlations with proximity to buildings, age of buildings, and building materials. The analysis report is expected to provide the necessary information for much more effective modeling of lead risk factors in Lynchburg homes.
**Proteomics: A Differential Proteomics Analysis of STEC Cells Grown in Vitro Versus in Vivo**

The presentation gives an overview of the methods used in proteomic studies on a general scale. It then delves into the core of STEC as a health care problem and how these proteomic methods were applied to the comparison of STEC samples. The goal of the project was to compare the in vitro cells to the in vivo cells hoping to discover proteins that are presented at a higher abundance in the in vivo cells. This could allow these proteins to potentially be used as drug targets, especially considering the recent outbreaks of STEC.

**Session II**

**9:45 | Stephanie Kofron, Sarah White, Jennifer Gamble, and Angela Toscano: Christopher Newport University  
Co-author: Dr. Jeffery Gibbons**

An Examination of the Fading Affect Bias and Alcohol

The fading affect bias is the tendency for negative emotions to fade faster than positive emotions. The current experiment examined the affect of the frequency of alcohol intake on the fading of negative and positive emotions. Participants completed an Alcohol Quantity and Frequency Questionnaire and reported their original and current emotions for pleasant and unpleasant events that involved or did not involve alcohol consumption. High frequency drinkers were expected to report increased fading for unpleasant events and less fading or unpleasant events than low frequency drinkers. The hypothesis was supported for women but male drinkers reported the greatest fading of negative emotions for alcohol related events than any other group, which was unexpected. Implications are discussed.

**10:00 | Stephen Short: Christopher Newport University**

**Big Five Personality Predictors of Islamaphobia**

Past research has found a relation between big five personality traits and prejudices (Ekehammar & Akrami, 2007). Specifically, agreeableness (Sibley & Duckett, 2008) and openness (Flynn, 2005) have been found to be negatively correlated to prejudice. Both religious (Hassan, 1975) and ethnic (Heaven & St. Quintin, 2003) prejudices and their relation to personality have been examined. However, only limited research has examined prejudice towards the Islamic faith. The recently developed Islamaphobia Scale (Lee et al., 2008) measures the degree of fear and hostility an individual has towards Muslims and the Islamic faith. In the present study, Islamaphobia and big five personality traits among a sample of undergraduate college students (n = 113) were measured. A hierarchical multiple regression found agreeableness to be a significant predictor of Islamaphobia, as hypothesized. Implications of this finding and future research are discussed.

**10:15 | Katie Barber: Christopher Newport University  
Co-author: Kristy Owens**

An Examination of Theory of Mind Understanding and Personality in Adulthood

Theory of mind (ToM) refers to one’s ability to attribute mental states to oneself and others. Most research has focused on ToM development during preschool years; however, less is known about ToM development in adulthood. It is generally accepted that adults understand ToM concepts, yet there might be individual differences in the degree to which adults apply such understanding. The present study examines the degree to which variability in ToM performance relates to personality characteristics. Fifty-three undergraduate students were tested individually in one-hour sessions. Each completed four written measures and one oral measure in a random order. There were three ToM measures (open-ended and closed-ended) and two personality measures (Need for Cognition, Self-Monitoring). Participants were debriefed at the completion of the study and given extra credit. Correlation analyses will be used to explore interrelationships among the measures. Implications of the findings will be discussed.

**10:30 | Anne Whitesell: Roanoke College**

The Impact of the “No Child Left Behind” Act on English Language Learners

This project examined the affects of the “No Child Left Behind” Act on English Language Learners. There are two main policy choices regarding the teaching of ELLs: English-only programs and bilingual instruction. Through the selection of six states—three which employ English-only programs (Arkansas, Georgia, and Virginia) and three
which use bilingual instruction (California, Texas, and Florida)—the achievement gap in reading and mathematics between ELLs and all students were analyzed to determine which method is most effective in bringing ELLs up to grade-level proficiency. In addition to standardized test scores, the impact of certified teachers, federal funding and the percentage of low-income students were analyzed. It was found that the success of these programs relies more on the individual programs of the state than any other factor.

**Session III**

9:45 | Victoria Trudeau: Sweet Briar College  
**Canadian Collage: The Fictional Art of Elaine Risley and the Canadian Artists Who Inspired It**  
This essay explores the connections between the fictional artwork of Margaret Atwood’s protagonist Elaine in her novel Cat’s Eye and the artwork of several real Canadian artists whose names are included in the acknowledgments at the beginning of the book. I establish extensive correlations between the artwork in the novel and the subjects and mediums in the work of the listed artists, as well as striking similarities between the biographies of the artists and the fictional Elaine. These connections are important to the study of both the novel itself and Atwood as an author. Common Atwood themes involving feminism, sexuality, mythology, personal trauma, natural disaster, and the wilderness appear in both the fictional and real artwork that inspired Elaine’s character. While Atwood has brought global attention to Canadian literature, the research presented in this essay suggests that she has an interest in promoting Canadian visual art as well.

10:00 | Janell Henderson: Mary Baldwin College  
**Silence: A Tool for Oppression**  
The tool of silence has had a long history of effectively oppressing a people. In this oral presentation I will share my research on how stripping a people of their voice is fundamentally the tool of all oppression. My presentation will in large part be concentrated on the role forced silence plays in the 19th and 20th century oppression of the black woman both in Africa and the United States. I plan to illustrate my thesis using historical events, first and secondary sources, and novels. I will draw upon multidisciplinary courses that include, but are not limited to African Novels, African American Literature, Women and Philosophy, African American Thought, and African American Religion. I conclude that it is not until a woman discovers and is willing to publicly share her individual voice that oppression is conquered.

10:15 | Elizabeth Zuckerman: Sweet Briar College  
**This Mortal Coil: Bringing Ophelia (Back) to Life**  
Ophelia, the tragic heroine of Shakespeare’s “Hamlet,” is one of the most compelling characters the Bard ever created. However, she is also one of the most enigmatic. The play offers only hints – and no definite answers – to the mysteries that have drawn writers and artists to Ophelia for over four hundred years. What was the nature of her relationship with Hamlet? What was it like to grow up in the corrupt court of Elsinore, under the suspicious eye of literature’s most infamously loquacious father? What drove her into madness, and how did she die? I am working on a novel from Ophelia’s point of view that suggests answers to these questions, and further explores the secrets of Elsinore and its inhabitants.

10:30 | Joseph Crowell: Longwood University  
**Zola’s Men Straddling the Fence**  
Émile Zola, argues Colette Beckett, loved writing about individuals that were “en marge”, trapped between two identities. These people were split because of some social or cultural factor. However, one factor that Zola found indisputable was a man’s virility. Many of Zola’s most famous works depict men who are unafraid of death and immune to pain both emotional and physical, but not every male character he details is so strong. These strong men are often paired with a weaker counterpart to augment the Herculean strength of the greater man, as John Lapp notes. But if one takes a close look at Zola’s work, especially Thérèse Raquin and several of his “contes”, one can see that even though Zola claimed that a man’s virility was not subject to question, many of his “manly men” aren’t quite what he would have claimed.

10:45 | Tyler Stuart Maupin: James Madison University
The Duel in Early Modern England: Dueling for False Honor and for Reputation
Dueling has been a part of human society since the medieval times and has gone through many changes and forms. From swords to pistols, the duel was an important part of almost every European society. While most people think of dueling as a matter of resolving honor and personal conflicts, this was not the case in early modern England. While dueling started out in England as a matter of resolving honor, it gradually underwent many changes until what was an exclusive avenue for maintaining honor among the elite moved toward all rungs of society. Not only did dueling move across class lines but the meaning and reasons behind the duel changed to fighting for reputation, not honor. The idea that gentlemen engaged in dueling only to maintain their image as polite and civil at all times was ultimately a façade.

Session IV

9:45 | Kimberly Parsons: James Madison University

December 16, 1773: The Ultimate Refusal
The destruction of English tea on a rainy evening, later to become known as the Boston Tea Party, forever changed the relationship between the colonies and Great Britain. It was an indispensable act of defiance from the colonies and a perfect catalyst to impel America to fight for independence from its mother country. The actions of 16 December 1773 were a complete surprise to many, but the execution of it suggested a well-planned operation. Through looking at the taxes implemented by Parliament in 1767 and 1770, and the actions and feelings of colonists led by patriot leaders, specifically Samuel Adams, the extremity of and reasoning behind this necessary, bold and daring night will become clear.

10:00 | Caroline Sapp: Sweet Briar College

The Cycle Continues: Tribal Policies in Iraq, 1880-1930
During the time of the British occupation of Iraq, experts endeavored to unravel the complex problems administrators were experiencing. Contemporary intellectuals spent time analyzing the tribal, land, and trade policies implemented by the British authorities to strengthen the Iraqi government. Their analyses failed to recognize key pre-existing Iraqi governing structures. This failure led to misconceptions of tribal structures and administrators among the British who then implemented inappropriate policies, which lead to an unstable social structure and a weak central Iraqi government.

10:15 | Alexandria Ruble: Christopher Newport University

Gendering Democracy: Effects of American Occupation on German Women, 1945-1949
Before 1945, traditional attitudes and the Nazi regime had diminished the civic role of women in Germany. The period of 1945-1949 became significant for German women as the Office of Military Government, United States (OMGUS) attempted to re-establish democracy in Germany. This paper explores perceptions of democracy held by German women and the American influence on the connection between gender and democracy. The older generation of women, helped by American women in the Women's Affairs Branch, sought political democracy and civic engagement, often through embracing women's issues such as homemaking. The younger generation of women, helped by American soldiers, sought economic democracy through material goods. Many of these young women were shunned from their German communities in attempts to cast out those who did not fit the “German ideal” of a woman. Although pursuing different paths, the result was the same: reinforcement of traditional American and German attitudes towards women.

10:30 | Caitlin Mcpartland: James Madison University

The Impact of Submarines on American Intervention in the Great War: Focusing on the Attack of the Lusitania
As the United States balanced on a tight rope of intervention in the early years of the Great War, European countries looked for a way to terminate the stalemate plaguing their land and sea campaigns. On May 7, 1917, at 2:10 p.m., tensions between the triangle of interests erupted as the German submarine, U-20 sent a Q-torpedo singing towards the Lusitania, resulting in over 1,200 lives lost to the cold ocean. The impact of the sinking of the Lusitania included William Jennings Bryan's resignation, internal conflicts within the United States, and a movement closer to American partiality. Considering these impacts, the decision of the Germans to sink the Lusitania has remained an international
controversy, and one of the most important turning points in the war. It was with this decision that America was pushed closer to intervention, ultimately leading to the demise of the German front.

10:45 | Shannon Kudlick: James Madison University

The Moon to the Rescue: John F. Kennedy's Personal Agenda in the Apollo Program

President John F. Kennedy is popularly recognized as the original champion for American space exploration and the person responsible for putting a man on the moon. While Kennedy did oversee the implementation of Project Apollo during his presidency, a closer examination of the early challenges his administration faced, including Soviet successes in space exploration and the Bay of Pigs invasion, reveal ulterior motives for the United States' involvement in the space race. Kennedy's early months in office were tainted by worldwide embarrassments and a loss of the country's credibility. In a very short period of time, Kennedy's personal desire to restore his integrity caused the United States to see drastic policy changes that defined a significant portion of the Cold War.

Session V

11:15 | Alexander Carroll: James Madison University

'Natural Order' to 'Economic Evangelism': The Christian Defense of Slavery in Virginia, 1785-1831

This presentation offers an examination of the development of the Christian defense of slavery within the state of Virginia, concentrating on the post-Revolutionary period to the early Antebellum period. This study directly contradicts the perception that proslavery Christianity was an eleventh-hour defense appropriated from the Deep South; rather, it advances the argument that the Biblical defense of slavery formed an integral part of the constantly evolving proslavery argument within the state of Virginia. Extended attention is given to two pivotal pieces of primary evidence: the 1785 circular petitions to the General Assembly and Thomas Dew's Review of the Debate in Virginia Legislature of 1831 to 1832, as these sources best emphasize the progression of Christian proslavery from "natural order" reasoning to "economic evangelism."

11:30 | Yousef Rabie: James Madison University

The Transformation of the Nation of Islam: Wallace Muhammad vs. Louis Farrakhan

The paper's focus is the transformation which the Nation of Islam undertook after the death of Elijah Muhammad. Elijah's son, Wallace Muhammad took over leadership of the organization upon his father's death and began complete reformation of the organization to orthodox Islam denouncing many of the organization's practices and doctrines. Louis Farrakhan, a famous figure in the nation and a close friend and ally of Elijah Muhammad became angered with these changes that Wallace implemented. Louis eventually established his own organization which would coincide greatly with that of Elijah Muhammad's.

11:45 | Mary Lynne Smith: James Madison University

Powell, Plecker and Unprecedented Power: The Institutionalization of Scientific Racism through the Racial Integrity Act of 1924

During the Progressive Era racial attitudes based on "science" helped bolster hatred in the South, especially in Virginia where individuals like Walter Ashby Plecker and John Powell asserted their racist agenda over the state bureaucracy. Their efforts to define and separate the races lead to the passage and implementation of the Racial Integrity Act of 1924, further institutionalizing racist hatred in Virginia. The development of this law and the roles played by Powell and Plecker seem to have been largely slighted by historians. These two men changed history, playing upon the fears and innovations of the period. The law created a stringent "one drop" definition of "colored," offered an injunction against intermarriage and gave the Plecker the power to prosecute offenders. The primitive measures of defining race are documented extensively in their correspondence. Ultimately however, Powell and Plecker failed to obtain the much sought-after provision making race registration mandatory.

12:00 | Nicole Justice-Kleemann: Christopher Newport University

Green Bridget's Lace Curtain: How Irish Immigrant Women Made the Irish 'White'

Throughout her history America has been referred to as a "melting pot" of cultures. People were drawn here by the promise of a better life and a chance at the "American dream", but not all immigrants were accepted with open arms.
One group in particular, Irish immigrants, had an exceedingly difficult time integrating into American society and were even considered not to be racial “white”. Due to this perception they were demonized, denied fair pay, suffrage, and open access to the job market. While male immigrants played a large role in making the Irish “white”, it would not have been possible without the actions of Irish American women. By shrewdly adopting a WASP and social Darwinist approach to welfare as well as embracing labor activism, Irish American women paved the way for all Irish immigrants to enter American society free from the constraints of racism.

12:15 | Holly Hartman: James Madison University

The Dangers of Paddy and the Pope: Nativism and Anti-Irish Sentiment in America 1820-1860
From 1820 to 1860, Irish immigrants to the United States faced discrimination that deprived them of jobs, political participation, and their newly granted rights as Americans. Such harsh responses to the flood of Irish immigrants were not simply a result of the competition with the native-born work force. Instead, the nativism resulted from a long legacy of American anti-Catholicism. As Protestant propaganda denouncing Catholicism increased, so too did discrimination and violence against the Irish community. The Irish were targets of riots, subject to discriminatory laws, and prohibited from participating in certain political groups due to their religion. This presentation focuses on how anti-Irish sentiment and anti-Catholicism merged into one entity to oppress the Irish population across America during the nineteenth century.

Session VI

11:15 | Doreen McVeigh: Sweet Briar College

Genomic Imprinting in the Canine
The principles of inheritance state that parental DNA determines the expressed characteristics in the offspring’s genome. Yet another layer of information, known as the epigenome, is also inherited from maternal and paternal gametes. Thus the DNA itself remains constant in each cell; yet an extra layer of information not coded in the DNA sequence leads to the expression or silencing of particular genes and cell specialization. The first goal of this project was to optimize the polymerase chain reaction (PCR) screening protocol for recombinant pGEM-T Easy vectors. The next goal focused on applying these optimized techniques to clone and sequence bisulfite treated genomic canine DNA from semen and umbilical cords in order to investigate the imprint control region of the IGF2 and H19 genes. Finally, this study aims to further the use of the canine as a model organism for studies of genomic imprinting.

11:30 | Ephrem Teklemariam: George Mason University & Cornell Medical College
Co-author: Huiying Guo

The Efficacy of Curcumin as a Chemopreventive Agent in Estrogen Receptor Negative Dcis Breast Cancer Model
Curcumin (CUR), the biologically active component of the spice Turmeric (Curcuma Longa) is a chemopreventive agent that has been shown to reduce tumorigenesis and prevent metastatic cancer. An estrogen receptor (ER) negative comedo DCIS model was created with exposure of HER-2/neu oncogene to normal breast epithelial 184-B5 cells. The resulting tumor cell line 184-B5/HER and the normal 184-B5 cell line represented the normal and tumor cells. Both cell lines were previously treated with varying concentrations of CUR and exhibited growth inhibitory response selectively to 184-B5/HER cells. Previous data generated from global gene expression analysis and q-RT PCR demonstrated down regulation of cell cycle regulatory genes selectively in tumorigenic 184-B5/HER cells. We observed by western blot analysis reduction of both cell cycle regulatory proteins (cyclins B1, B2, cdk2, cdc 25c, retinoblastoma) and NFkB pathway proteins by CUR in this pre-clinical cell culture model for DCIS breast cancer.

11:45 | Lara Slough: Sweet Briar College

Histology of the Digestive System of Scyliorhinus Retifer, the Chain Catshark
I prepared a histological description of Scyliorhinus retifer, the chain catshark, to show that the digestive tissues resemble the digestive tissues of other vertebrates. After removing the digestive tract from the dissection specimen, I took ten strategically located tissue samples from the digestive tract and prepared them for observation. I observed the slides I made from the tissue samples using light microscopy and took photomicrographs. Then, I compared my photomicrographs to photomicrographs taken of digestive tract tissues of other vertebrates. I concluded that the digestive tissues of Scyliorhinus retifer are similar to those of other vertebrates. These results indicate similar function of the digestive systems as well as a common ancestor.
Substrate Preference of *Crassostrea Virginica*: Effects of Polyploidy on Set Inducing Cues

Spat, the juvenile stage of the Eastern Oyster, *Crassostrea virginica*, must grow quickly to reduce risks of disease and predation. In this study, we evaluated the effect of substrate on set rate. Previously existing spat were removed from the shells of 4 substrate treatments including live triploid or diploid oysters and triploid or diploid oyster shells. There were 170 specimens of each substrate per replicate and 3 replicates. After surface area was calculated for each specimen, the oysters and shells were placed on 2 parallel racks positioned 1m apart and 0.3m above the bottom of an intertidal oyster lease in Perrin River, a tributary of the York River, Virginia. Samples were monitored 3 times in 1-month intervals for spat set, and oyster mortality was monitored after 5 months. Early results suggest that of the four substrates tested spat prefer triploid shells, which could enhance restoration and commercial aquaculture efforts.

Utilization of Woody Debris by *Peromyscus Leucopus*

Due to the threat of predation, small nocturnal mammals such as *Peromyscus leucopus*, the White-footed mouse, tend to avoid open spaces. Based on this documented behavior, I hypothesized that mice would be live-captured at a higher frequency in forested trapping sites with higher volumes of woody debris. Live-capture Sherman traps (121) were placed 10 m apart in a permanent 1-hectare plot in an urban, fragmented forest on the Meredith College campus. Small mammals were captured, marked with permanent hair dye, and measured (ear, head-body, tail, and hind foot) over two consecutive summers. Volume of woody debris was measured at each trapping site. I found that there was no correlation between volume of woody debris and number of *P. leucopus* captured. We will continue to trap the permanent plot and hope to eventually be able to compare several years’ worth of data.

Extremely Unbelievable Headlines Eradicated Encoding Specificity for Newspaper Headlines

The current study used newspaper and extreme tabloid headlines to demonstrate encoding specificity or lack thereof. 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. Participants rated the believability of each headline on a 7-point Likert-type scale that followed the headlines at both presentation and test. Recognition was also assessed. The current study did not show encoding specificity for newspaper or tabloid headlines. Specifically, tabloid headlines were recognized extremely well but no reverse encoding specificity was found for tabloid headlines. Moreover, encoding specificity was not found for newspaper headlines. Therefore, the extreme headlines inhibited encoding specificity of newspaper headlines.

The Effects of Olfactory and Visual Cues in Maze Learning in Rats

This study evaluated the impact of olfactory and visual cues on maze learning in rats. The procedure utilized a custom-built, fully modifiable maze designed to control intramaze and extramaze cues. The maze provided reliable olfactory and visual cues across trials for all subjects of one group. For another group, the maze was modified between every trial for every subject, making olfactory and visual cues unreliable. The group with reliable olfactory and visual cues significantly outperformed the group with no reliable cues. These results suggest that the fully modifiable maze will be a useful tool for studying memory when precise control over environmental cues is desirable.

Interrelationships Among Theory of Mind Measures in Adulthood

Theory of mind (ToM) refers to one’s ability to attribute mental states to oneself and others. Most research has focused on ToM development during preschool years, yet less is known about ToM development in adulthood.
The present study examines adult ToM performance and specifically examines performance across three measures that assess adult ToM understanding. Past research has assessed adult ToM understanding with either open-ended or closed-ended measures. This study examines the degree to which performances on these different tasks are related to determine whether there is consistency in how the construct is defined. Fifty-three undergraduate students were tested individually in one-hour sessions. They completed four written measures and one oral measure in a random order. There were three ToM measures and two personality measures, which assessed need for cognition and self-monitoring. Participants were debriefed and given extra credit. The implications of this study will be discussed.

12:00 | Marshall Jarrett: Virginia Military Institute

Mathematical Modeling: Rabbit Haemorrhagic Disease
Scientists and mathematicians have developed mathematical models to describe the spread of diseases in populations. One type of classical epidemic models, the MSEIR, divides an infected population into different subgroups and uses differential equations to describe changes in each subgroup. In this presentation, a variation of the MSEIR model will be reviewed and applied to the Rabbit Haemorrhagic Disease (RHD), an epidemic disease that first surfaced in the 1980’s. History of the disease, disease characteristics, and mathematical analysis of the model will also be reviewed.

12:15 | Cynthia Roden: Sweet Briar College

Economic Determinants of Suicide Rates: A Study of U.S. Counties
This study examines suicide rates in U.S. counties. Variables from previous studies and a new variable, transfer payments per county, are used to form a model that helps predict suicide rates. Economic theory provides reasons for the inclusion of each independent variable and explains its respective relationship to the dependent variable (suicide rate). A regression model is used to test the ability of each variable to predict the suicide rate, and normal statistical tests are used to determine the overall effectiveness of the model. Results from this study suggest that more research should be done on the relationship between transfer payments and the suicide rate.

Session VIII

11:15 | Megan Behrle: Sweet Briar College

Beyond the Gold: An Analysis of the 2008 Olympics through an Historical and Political Context
The medals have been awarded, the crowds have dispersed, and the athletes have returned home; but what influence did the Olympics Games exert on the host country? The primary objective of the Olympics when re-established in 1896 was to promote peace through athletic competition, with no regard to international tension. However, the history of the games is marred by political controversy. Through boycotts and protests, many international actors believe the Olympic Games are a platform for instigating political change in the host country. Structured by historical cases, such as the 1936 Berlin Olympics and the 1972 Munich Olympics, the case for the Olympics’ ability to effect political change is established. Specifically, with the watching eyes removed, will China address the protested issues of human rights abuses, sovereignty over Tibet and Taiwan, and environmental degradation.

11:30 | Brandon Payne: Christopher Newport University

Adding More Fuel to the Fire: The Politics of Russian Energy
Russia is one of the most important energy providers of the 21st century. As a leading exporter of both oil and natural gas commodities, Russia’s power and market influence are only destined to grow. Enjoying its most prominent position in world politics since the height of the USSR due to the export of these commodities, Russia has expressed a strong desire to integrate further into the world economy. In spite of its enormous potential, there are still many skeptics about Russia’s reliability as an equal business partner. Deep-seated political tensions between Russia and former Soviet states have also complicated relations with both Europe and the United States, as the recent conflict in Georgia has brought to the world’s attention. As energy becomes in higher demand, however, the West is finding that it needs Russia just as much as Russia needs the West.

11:45 | Hannah Vargason: Mary Baldwin College
Helping People Help Themselves: Government and Corporate Policy Options which Promote a Higher Personal Saving Rate for Retirement

This project will explore the issue of a low personal saving rate in the United States, as well as potential government and corporate policy options which may address it. Not only does personal saving account for a portion of national saving and, thus, affect the Current Account, studies from the emerging field of behavioral economics have shown that individuals are not saving enough to make large purchases (such as homes) or for retirement. The average American will not be able to sustain their current standard of living after retirement; and in the foreseeable future, in aggregate, there will be a significant portion of the population that will experience decreased well-being or even poverty. A review of behavioral economic theory in addition to classical economic models, in conjunction with a policy recommendation will be a significant contribution to the discussion occurring within the discipline.

12:00 | Petra Dacheva: Sweet Briar College

Commercialization in Microfinance – A Study Of Profitability, Outreach and Success Factors within the Latin American Context

The transformation of the concept of Microfinance has been an ongoing process. It used to refer to the simple transfer of funds in the form of microcredit. Traditionally, the idea of it was very standardized – providing people and families in poverty with a credit product. Nowadays, the industry has changed dramatically, offering the poor a vast amount of financial services and products. The Latin American region exhibits the greatest profitability and sustainability in Microfinance than any other region in the world. It is also one of the most diverse institutionally and conceptually. Therefore, large consumer-focused lenders are entering the market. I will examine the effects of commercialization on the profitability and outreach of institutions analyzing case studies. In the second part of my research I will present an empirical study I have replicated on whether commercialization impairs depth of outreach, using financial data from a hundred and ninety institutions.

12:15 | Dorothy Patterson: Berea College

Embracing Awkward: A Qualitative Study of Perceived Experiences of U.S. Undergraduate Students Studying in Non-English Speaking Cultures

Current literature regarding undergraduate study abroad experiences often presents studies based on non-U.S. student experiences of studying at colleges and universities in the United States. The research conducted for this paper highlights a different perspective within the field. Through the use of semi-structured interviews, the perceived experiences of undergraduate students who spent a semester studying abroad in non-English speaking cultures and countries are explored and analyzed for thematic similarities using qualitative methodology.

Session IX

1:45 | Alyssa Fisher: James Madison University

The Lowell Mill Communities: Regulation and Freedom in the Textile Mills of Lowell, Massachusetts

Permanent textile mills introduced to New England in the late 1700s and early 1800s led young women of farm families to believe their hopes of independence and freedom would be gained through mill employment. From farm-based, male dominated communities, women left for the mill towns searching for opportunities they felt their homes could not offer. As women began to toil in the conditions of the mills and boardinghouses, they found their ideas of life in the factories would not be fully realized. This paper focuses on the women of Lowell, Massachusetts as textile mills were introduced and as women sought employment with mill companies. Specific focus is placed on the motivation of women seeking employment in mills, the realities of mill life and work environment as well as the actions women took to gain the true freedom and independence they desired.

2:00 | Mary Bronson: Mary Baldwin College

Whatever Happened to the Lindbergh Baby?

On the night of March 1, 1932, twenty-month-old Charles Lindbergh, Jr. was taken out of his crib in the middle of the night. Once the media got hold of the story, everyone across the nation was helping to search for the little baby. Sad news came on May 21, 1932: only a couple of miles from the Lindbergh home, a decomposed body of a baby, believed to be Charles Lindbergh, Jr., was found. After the finding, people were looking for someone to point fingers at. Their answers came when Bruno Hauptmann was arrested for the kidnapping and murder of Charles Lindbergh
Jr. He was found guilty and died by the electric chair. Years have passed, and some people wonder, did Bruno really kill the baby? Or is Charles Lindbergh Jr. really dead? The object of this work is to answer those questions.

2:15 | Kelly Weber: James Madison University

The Effects of the Civil War on the Confederate Women of the Shenandoah Valley

Virginia’s Shenandoah Valley was hotly contested territory during the Civil War because of its proximity to both Washington, D.C. and Richmond. The region was under either Federal or Confederate occupation for the majority of the war, which took a serious toll on the women and families that lived there. Examined here are the diaries and correspondence of five women who lived in the Valley during the war; four Confederate sympathizers and one Federalist. Each faced their own set of hardships, such as the occupation of their homes by Federal troops and trying to feed and clothe their children and themselves in the tough economic climate. Even with the obstacles that they faced, the patriotism of these women never wavered, and they showed tremendous resilience throughout the war.

2:30 | Maryalyse Klement: James Madison University

Backbone of the Capital: Activism of Richmond Women During the Civil War, 1861-1865

During the American Civil War, the Confederate women of Richmond, Virginia played a critical role in supporting the war effort. Through an analysis of primary and secondary sources, their contributions, often neglected by historians, were brought to light. Confederate women saw it as their patriotic duty to provide assistance to the Confederacy any way that they could, even if it involved exploring new fields of opportunity, blurring the lines of pre-established gender roles. Richmond women loyal to the Cause served as nurses in both public and private hospitals, as well as government positions vacated by soldiers. They also provided the Confederate army with uniforms and supplies, often sacrificing their own possessions to fill the need. It is certain that without the help of these patriotic women that the Confederate capital would have collapsed long before 1865.

2:45 | Erin Stevenson: James Madison University

Solidarity through Civil War: The Development of Class Consciousness in the Coal Fields of West Virginia, 1912-1922

In 1912, the “Mine Wars” began to rage in the hills of West Virginia. During that first strike, the miners resolved to fight for the benefits that unionism would bring. In this struggle, they were aided by members of the Socialist Party of America and through them began to realize class solidarity and consciousness. In World War I, these same men fought to end autocracy across the globe. When they returned home, they were ready to do the same in their coal fields. Their loyalty was no longer to their union, their state, or even their country, but only to their own ilk. They were fighting to free their oppressed brethren from the tyranny of the non-union coal fields and to seek vengeance for the wrongful slayings of the martyrs to their cause. This culminating coal clash came in 1921 and was called the “Battle of Blair Mountain”.

Session X

1:45 | Kimberly Shrader: Sweet Briar College

A Second Helping: Sociocultural Connections between HIV and Nutrition

In this paper I will explore the social and cultural connections that link HIV infection, malnutrition, and access to food. One might imagine that a discourse related to malnutrition and HIV would be contained to the borders of developing African nations, but these connections also occur within America. Members of the African-American community comprise nearly half of all HIV infections in the US, as well as one of the most likely populations to suffer from nutrient deficiencies, for reasons that will be examined in depth throughout this project. My research will explore nutrition as a cultural construct, a social product, and an important dimension of the management of HIV/AIDS. In addition, my research will link approaches to the cultural construction of food and the body, as well as social problems linking the distribution of resources and inequality in terms of health care.

2:00 | Emily Mccarty: James Madison University

Female Workers during the 1950s: The Overlooked Movers and Shakers who Empowered the Women’s Rights Movement of the 1960s
The image of women in the 1950s often materializes in the form of the stereotypical, “June Cleaver” housewife. However, following the emergence of women’s involvement in the work force during World War II, women of the 1950s gradually continued to seek opportunities outside the home and redefine their roles in society. The 1950s emerges as a transitional decade where women learned to blend their traditional roles homemakers and their evolving modern roles as working women. Their increased involvement in opportunities outside the home throughout the decade provided the momentum necessary for the women’s rights movement of the 1960s.

2:15 | Jeanne Fusello: Neumann College

Forty Is the New Twenty: An Examination of Advanced Maternal Age and Childbearing
American society has seen significant changes in certain family demographics, particularly maternal age. The past few decades have seen an increasing trend in the growing number of women having children at advanced maternal ages, defined as childbearing past the age of 35. This trend will be considered from the view points of multiple disciplines, including medicine and sociology. The presentation will examine possible causes for this current trend, the advances in technology and fertility information women use to become pregnant in their later years, and the medical truths and myths behind delayed childbearing.

2:30 | Britt Patterson: Sweet Briar College

Layers of Time: The Use of Secrecy and Construction of Knowledge in Dogon Art
In my project, I explore the factors that determine access to the cultural knowledge that is believed by the Dogon people of Mali to be embodied in their art. I also investigate the possible relationship between gender and the accessibility of “secret” cultural knowledge within Dogon society. These questions will be examined through the analysis of three examples of Dogon art: a mask, a wooden sculpture, and a granary door. My goal for this research is to provide an accurate representation of these pieces for their display in a 2009 African art exhibit and lecture series. This project began in the summer of 2008 as part of the Sweet Briar Honors Summer Research Program.

2:45 | Ashley Bentivoglio: Neumann College

From Samhain to Halloween: How Paganism Influenced AaModern Tradition
For thousands of years it has been a night when spirits are believed to walk the earth, and in modern times it is defined by candy, costumes, and a choice between a trick or a treat. To discover from whence these traditions and superstitions (such as carving jack-o-lanterns, wearing masks, and black cats meaning bad luck) came, this presentation will trace the tradition known as “Halloween” back to its roots deep in Celtic folklore and mythology, as well as explore the influences Christianity had on this very Pagan holiday originally known as “Samhain.”

Poster Session

1. Maxine N. Emerich: Sweet Briar College
Co-author: Dr. Scott Pierce

Design of a Six Degree-of-Freedom Articulated Robotic Arm for Manufacturing Electrochromic Nanofilms
The subject of my report is the development of a six degree-of-freedom articulated robotic arm to automatically manufacture electrochromic nano-scale films on glass slides. The development of equations for forward and inverse kinematics of the robot arm is described. From the kinematic equations the geometry of the robot is created. The forward and inverse kinematics are used to design the robot links. Using the selected link geometry, torque values are calculated for each robot joint. Motors to support the expected torques are chosen from a commercial supplier. Motor housings are being designed, which will be the joints in the arm of the robot. Finally, an end-effector is designed that attaches to the robotic arm and which holds and rotates the slides that are used to make nano-films.

2. Allan Kisoma and Andrew Tessier: Washington And Lee University

Investigation of Supersonic Flow Using Nonresonant Laser-Induced Electrostrictive Gratings
We measure temperature in an underexpanded, supersonic jet flow. The structure of supersonic jet flow is more complex than subsonic jet flow. One of the key differences is the turbulent structure of the shear layer, or the region between the jet core and ambient air. Because physical measuring devices disrupt the structure of the flow, a
A nonintrusive technique is required. In our case, we utilize pulsing lasers to temporarily create a standing pressure wave at a point in the flow. Using another laser, we analyze the oscillation of the wave to determine the temperature, as the rate of oscillation is proportional to the temperature of the air. The standing wave dissipates quickly, therefore the measurement is considered instantaneous. The nonintrusive, rapid acquisition combined with the precision of the technique allowed the temperature fluctuations in the shear layer to be measured for the first time.

3. Sreya Bagchi And Iva Gerasimenko: Randolph College
Co-authors: Tatiana Toteva, Zhigang Peng

Using Semblance Analysis to Identify Seismic Scatterers Near Parkfield, Ca
The Earth’s shallow crust contains microcracks and fractures that are capable of generating strong scattered seismic waves. The goal of this study was to use semblance analysis to identify scattered waves from earthquakes that occurred around the Parkfield section of the San Andreas fault. We used seismic records from the USGS Parkfield Dense Seismograph Array (UPSAR). We compiled a data set of 1071 events, with magnitude ranging from 0.1 to 6.0. The data were converted to Seismic Analysis Code (SAC) format. The arrivals of P and S waves were manually picked. Additional signal processing such as removal of the mean and frequency filtering was applied to improve the quality of the data. Semblance analysis was used to measure the correlation between the different seismic records. Our results show high values of semblance in the S-coda waves for a number of events, which could be scattered waves generated in the crust.

4. David McMahon: Longwood University

Structure of White Dwarf Stars
A simple numerical model of the equation of state for a spherically symmetric, non-rotating, white dwarf star with no magnetic field is developed with attention given to the relativistic dynamics of the free electron gas that provides the supporting pressure to balance the gravitational force. We discuss the numerical methods, initial conditions, and range of expected results produced by the model, along with the appropriate scaling factors that guarantee numerical stability.

5. Katelyn James: Sweet Briar College

Developing an Experimental Process for Studying the Effect of Electrets on Gas Flow
This research seeks to develop an experimental test rig that allows for an investigation of a new method for increasing the performance and efficiency of turbomachinery. The method involves the use of an electrostatic boost that is mediated by an electric field. The hypothesis is that an electret coating on the blade surface will couple the flow closer to the blade, thus reducing separation. In the case of compressor blades this will provide for an increase in the pressure ratio achieved during the gas compression process. If successful in developing an effective design this method could be applied to many other situations that suffer from inefficient gas flow. To test this hypothesis an experimental rig was developed to test the effect that electrets have on airflow. Additional research explored the various properties of electrets which resulted in the development an experimental process to measure the surface charge density of electrets.

6. Maryanne Haslow-Hall, Sara Sheppard, and Kelly Mauri: Sweet Briar College
Co-author: Aimee Savage

Sweet Briar Energy Audit Final Report
Sweet Briar is beginning to make a conscious effort toward becoming a more sustainable community, and toward reducing its carbon footprint. As a result of the Presidents’ Climate Commitment, a promise to take part in reducing their impact on the planet and to reduce carbon emissions, the college hired four student energy auditors to begin the process of calculating what the college consumes and where it can begin to make the transformation to carbon Neutrality. Using knowledge of buildings and a software simulator, buildings where most energy was being wasted were determined and recommendations for improvement were made.

7. Omar H. Elsayed-Ali: Christopher Newport University
Co-authors: Hani Elsaid-Ali and Tatrk Abdel-Fattah

Effect of an Applied Electric Field on Cation Exchange in Zeolites
An electrolytic cell was constructed using inert carbon electrodes. Synthetic Linde Type A (LTA) Zeolite A was placed in the cell. Copper(II) chloride dissolved in water was used as a contaminant. Using optical absorption, the Cu\textsuperscript{2+} concentration was measured for ten hours with and without an applied electric field. The results show that the removal of the Cu\textsuperscript{2+} ions was accelerated by the applied field. The difference is most notable in the first few hours. After several hours, the amount of copper ions removed from the solution per hour diminished. This limitation is thought to be due to saturation of the cation exchange capacity of the zeolite. The presence of zeolites complicates the chemistry near the cathode and causes precipitation of copper oxide.

8. Kristen Clare: Roanoke College

Role of Aspartate at Position 81 of 5,10-Methenyltetrahydrofolate Synthetase

5,10-methenyltetrahydrofolate synthetase (MTHFS) serves to convert 5-formyltetrahydrofolate to 5,10-methenyltetrahydrofolate. The objective of this project is to learn what amino acids are important to the structure and function of MTHFS. Site-directed mutagenesis was used to create a mutated protein by exchanging aspartate at position 81 to alanine. It is hypothesized that this aspartate forms an ionic interaction with a lysine residue and through it positions a loop important to the binding of ATP. The Michaelis constant (Km) for ATP was 86 ± 10 \text{μM} and the Km for folinic acid was 5.8 ± 1 \text{μM}. Compared to the wild type Km for binding of ATP (76 ± 9 \text{μM}) and for binding of folinic acid (2.5 ± 0.3), the loss of aspartate creates slightly weaker binding to folinic acid but has similar binding to ATP. These results indicate that the aspartate does not help to hold the loop in place.

9. Robbie Karim: Roanoke College

Use of lBH with Amides to Prepare Neutral Compounds with 2 N Atoms Bonded to B

The focus of this research was to observe reactions involving the nitrogen atom of an amide and an iodoborane. The first reaction involved benzamide and trimethyl amine-iodoborane which reacted smoothly overnight to produce an unidentified aromatic compound. After running hydrolysis on the sample, NMR analysis revealed that the compound was hydrolyzed into benzoic acid. The NMR also revealed that there was very little boron-containing compounds in the final solution. Another reaction involved trimethyl amine-iodoborane and tetramethylmalonamide, TMMA which formed a mixture of products. Interpretation of the NMR spectra for the TMMA reaction was difficult due to the presence of only singlets in the 1H NMR. NMR analysis also revealed that the compounds were also unstable and that little of the sample contained boron-containing compounds relative to the whole sample.

10. Anne M. Brown: Roanoke College

Identification and Characterization of Purp in Thermococcus Kodakarensis and Pyrococcus Furiosus

In this research study, we have characterized and identified the function of three genes in selected archaeal species coding for purP-like enzymes. These genes coding for a purP-like enzyme are used in the second to last step in purine biosynthesis that involves the conversion of 5-aminoimidazole-4-carboxamide-1-β-D-ribofuranosyl-5'-monophosphate (AICAR) to 5-formaminoimidazole-4-carboxamide-1-β-D-ribofuranosyl-5'-monophosphate (FAICAR). Several species contain duplicate genes coding for an enzyme catalyzing the same step. In this study, the purP-like enzymes were expressed and then characterized with the Bratton-Marshall assay. The final results of this study are that enzyme TK0431 from Thermococcus kodakarensis has activity. For Pyrococcus furiosus, enzyme PF0421 does not show AICAR formyltransferase activity, while enzyme PF1517 does show activity.

11. Kelsey A. Sloan: Roanoke College

Co-author: Dr. Gail Steehler

Green Chemistry and Beyond: Educationally Enhancing Teaching Laboratories

Experiments from introductory chemistry courses at Roanoke College were assessed for their environmental-friendliness. Several existing experiments were modified to reduce hazardous waste production. During the assessment, areas were identified where positive changes could be made to enhance the curriculum by adding new experiments. Nine experiments were either newly developed or altered to be more environmentally-friendly or add learning value to the curriculum.

12. Jennifer Thurman: Lynchburg College

Co-authors: Priscilla Gannicott and Nancy Cowden
Alluring Perfumes: Floral Fragrance Investigations in Cypripedium Parviflorum var. Pubescens Populations
To explore the relationship between pollinator attraction and fruit set, we employed two sampling methods to collect floral fragrances from central Virginia populations of Cypripedium parviflorum var. pubescens during the 2008 flowering season. Our results suggest that large yellow lady’s slippers produce scents only over a short time span. In addition nonanal, phenylethyl alcohol, and phenylacetaldehyde, 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 us to determine the role of fragrance variation in the differential reproductive success of C. parviflorum var. pubescens individuals.

13. Laura Hanold: Sweet Briar College
Co-authors: Sarah McLemore and Jessica Ungermann

3(2h)-Furanones: The Synthesis and Photochemical Study of Potential Cox-2 Inhibitors
The purpose of this research was to synthesize 3(2H)-furanones and study their photochemical properties. This research was inspired by the recent discovery of inotilone, a selective COX-2 inhibitor containing a 3(2H)-furanone core. Inhibition of COX-2 helps to decrease the pain and inflammation involved in the inflammatory response, which makes inotilone a potential candidate for medicinal testing. Thus, inotilone derivatives would be synthesized from the synthesized 3(2H)-furanones. 5-Methyl-3(2H)-furanone was successfully synthesized in four steps with an overall yield of 89.6%. An inotilone derivative was successfully synthesized in an aldol reaction of the methyl furanone and benzaldehyde, resulting in a 13.5% yield. This compound will be used in future studies of the medicinal properties of the inotilone derivatives. 5-Phenyl-3(2H)-furanone was also successfully synthesized and its photochemistry was explored. Irradiation at 300 nm in benzene resulted in dimerization of the phenyl furanone.

14. Dominique Keuling and Samantha Tsoteros: Christopher Newport University and Mariners Museum

The Effectiveness of Electrolysis for the Removal of Chloride Ions in Marine Artifacts
Research was conducted at the Mariners Museum located in Newport News, Virginia in order to determine the effectiveness of electrolysis on marine artifacts. Electrolysis was utilized in order to remove damaging Chloride ions that are present within the marine artifacts. Chloride ions must be removed in order to prevent corrosion and metal loss of the metal-based artifacts. Each week between the first week in October 2007 until the first week in April 2008, a sample of solution containing the artifact undergoing electrolysis was taken. From these samples, Ion Chromatography was used to detect the concentration of Chloride ions for each week. The pH was also taken and used to regulate the actual electrolysis solution and ensure the basicity or acidity of each sample. The data collected at the end of the research period was analyzed and ensured that electrolysis was indeed effective for the removal of Chloride ions.

15. Priyanka Uprety: Randolph College

Optimization of Multi-Modality Adenoviral Vector via a Packaging Line/‘Mosaic’ Strategy
Adenoviral (Ad) vectors have been used for variety of gene therapy applications, in both animals and humans. We have modified Ad minor capsid protein IX (pIX) locale for foreign peptide incorporation. Ligands like luciferase (Luc) and thymidine kinase (HSV-TK) have relevance for imaging, targeting or therapeutic use. Our study demonstrates the possibility of making double ‘mosaic’ adenovirus by direct incorporation of Luc and TK on adenovirus capsid protein IX. In this study we propose to create a ‘mosaic virus’ containing TK and Luc, on a single virion, by means of a packaging cell line system that expresses these proteins and facilitates their dual assembly via complementation. We created and validated Ad vector and packaging cell line expressing pIX-TK and pIX-Luc. Our study is the first of its kind to compare the benefits of a packaging line strategy versus genetic/co-infection strategy in this context for the generation of a multi-modality Ad vector.

16. Puspa Thapa: Randolph College
Co-authors: Sreya Bagchi and Priyanka Uprety

Creating a Recombinant Plasmid for the Conditional Immortalization of Proepicardial Cells
The aim of this independent study was to isolate and insert the v-myc gene into a shuttle, called a plasmid vector. This plasmid vector containing the v-myc gene will be used to transfect quail proepicardial cells next semester. The v-myc gene was isolated from a DNA plasmid grown in E.coli bacteria. After isolation, enzymatic reactions and gel electrophoresis were carried out to confirm the presence of v-myc. The gene was then extracted from the gel, modified to fit into the plasmid vector and ligated into it, thus creating a recombinant plasmid. We will have several...
recombinant plasmid vectors sequenced to identify the plasmids where v-myc has been inserted in the correct orientation for expression. The long-term goal of this study is to create quail cell lines with conditional control of the expression of DNA coding for this immortalizing gene so that these cells can remain viable in long-term tissue culture.

17. Jennifer M. Doughman: Roanoke College
Co-authors: Dr. Christopher Lassiter and Amanda Smolinsky

The Antiandrogen Vinclozolin Increases Androgen Receptor mRNA Expression Levels in Embryonic Zebrafish (Danio Rerio)
Vinclozolin, a known endocrine disruptor, is a fungicide that is commonly used on crops. An endocrine disruptor is a chemical that blocks hormones and interrupts normal body functions, including growth and development. Vinclozolin is an antiandrogen, which inhibits the effects of the male hormone testosterone and its derivatives. During this study, we found that androgen receptor mRNA increased significantly in embryos treated with vinclozolin, particularly between 48 and 72 hours post fertilization (hpf). Treated embryos at 48 hpf expressed AR mRNA at 8.4 fold the control concentration and at 72 hpf the difference between the vinclozolin and the control was 8.6 fold. This data suggests that embryos increase the concentration of androgen receptors to adjust to the presence of vinclozolin. Further research will allow for visualization of tissues in which the androgen receptor is expressed and the effect of vinclozolin on that expression.

18. Jessie Waitt: Sweet Briar College

The Variation and Distribution of Placoid Scales in Chain Catsharks and its Significance in Taxonomy
The overall objective of this Honors Summer Research was to compare and analyze placoid scales from different areas of the shark’s body, to determine if predicted variation is present. I examined scales from one species, Scyliorhinus retifer, in three different size ranges from juveniles through adults, and both sexes. The skin samples were air dried, metal coated, and examined for scale shape using a scanning electron microscope. A total of at least one hundred and fifty scale samples were closely examined to support my hypothesis that scale shape varies with age, and location on body. Throughout the eight weeks, I analyzed placoid scales and compared them to different body regions, sizes, and sexes to support the hypothesis that scale shapes do change within body region and age. However, the scale shapes did not vary with both sexes. This will in effort, show that when essential information is provided placoid scales can be very useful in taxonomy.

19. Marwa Abdel Latif: Randolph College
Co-author: Prof. Rebecka Brasso

Mercury Allocation into Eggs Laid by Tree Swallows
Mercury contamination of eggs is suspected as a major cause of impaired reproductive success in wild birds. The purpose of our study was to determine whether an insectivorous songbird, the tree swallow (Tachycineta bicolor), differentially allocates mercury into each egg within the clutch. Eggs were collected from 15 nests along the contaminated South River in the Shenandoah Valley, VA and from 15 nests along nearby uncontaminated, reference tributaries. We found each egg within a clutch to have a similar mercury level; little to no intraclutch variation was detected. However, in the studies of the large fish eating-birds, there was a 25% average difference in mercury levels between consecutive eggs. We suggest that for tree swallows, any egg one within the clutch can serve as an accurate indicator of local mercury contamination. Collecting one egg at random from a nest is more efficient, inexpensive, and less destructive to the population.

20. Nikki Pham: Sweet Briar College
Co-authors: Adella Robinson, Melaina Macone, Lisa Ruffle, Jessica Johnson, Andrea Capano, Dr. Linda S. Fink & Dr. Janet C. Steven

Long Term Ecological Research on Forest Composition
Sweet Briar College's COSIP Sanctuary is a 1000m by 40m transect of hardwood forest, in which all trees measuring at least ten centimeters in diameter at breast height (DBH) were identified, tagged and measured in 1989 and again in 1998-1999. We collected DBH and tree health data in May 2008. We are using the three data sets to examine changes in forest canopy composition over 19 years. This poster will summarize the forest's demographic trends including successional changes and differences in growth rate.
The Effect of Tree Density on Herb Vegetation Cover in Restored Forested Wetlands

Forested wetlands are the most frequently impacted wetland type in Virginia and tree establishment has proven difficult. Colonizing trees often contribute the majority of woody stems in portions of sites and can outnumber planted trees. Herbaceous species also quickly colonize restored sites, yet the effect of competition between colonizing trees and colonizing herbaceous vegetation has not been addressed, which is the purpose of this study. Dominance of woody and herbaceous species was evaluated in 38 plots in a 2-year old site and 60 plots in a 7-year old site over two growing seasons and competition was assessed by Pearson Correlations within sites and years. Significant negative correlations (PC = -0.31, p=0.02) were detected between tree stem density and herbaceous cover at the 7-year old site. Data suggest that colonization dynamics within the first year can indicate successional trends, but canopy closure decreases herbaceous cover within 7 years after restoration.

Abundance Patterns of Two Invasive Species in Southwestern Virginia and Implications for Conservation

Non-native species pose serious threats to native communities and are a top cause for species endangerment worldwide. Two important approaches to understanding these threats are to (1) assess causes of invasion, and (2) the effect of invasions. We used both approaches in studying the abundance of two focal invasive species: Microstegium vimineum and Alliaria petiolata in plant communities in Southwestern Virginia. We surveyed four sites for abundance of the focal species, collected vegetation data in areas with high abundance of the focal species and areas of very low abundance the focal species (controls). We found sites with higher native richness had lower focal species abundance (P<0.05). Also within focal species populations we found more understory biomass (P< 0.001) and higher non-native richness compared to controls (P<0.01). These results suggest that species poor communities are more likely to be invaded and invasive species may facilitate other invasions at our sites.

Matter of Taste: A Relationship between Attitude and Hop Tea Bitterness Test

Attitudes toward beer could be affected by the individual’s ability to perceive bitterness. The current study examined the relationship between participants’ attitudes toward beer and bitterness taste perception in 136 undergraduates. A scale measuring positive and negative attitudes toward beer was constructed, loosely based on the PANAS scale. Participants’ bitterness perceptions were measured using a hops tea solution at 10 international bitterness units (IBU). Participants’ positive affect toward beer correlated negatively with bitterness perception (r = -.216, p < 0.001) and the negative affect toward beer correlated positively with bitterness perceptions (r = .210, p < 0.01). These relationships imply that there is a strong relationship between attitudes toward beer and bitterness taste perception. No significant gender difference could be found in bitterness perception; this could be caused by low power and unequal sample sizes.

Sex and Impulsivity in Siamese Fighting Fish (Betta Splendens)

Animals can often choose between smaller and immediately available rewards (i.e. impulsiveness) and larger but delayed rewards (i.e. self-control). While past research has examined the effect of various factors on impulsive choices in a number of species, little research has been done on sex difference on these choice distributions, especially in teleost species. To address these limitations, the current study examined instrumental choice behavior in 12 Siamese fighting fish (Betta splendens). In the study, 6 subjects were male and 6 subjects were female. Over a 3-week series of instrumental trials, each subject had the choice of a smaller-sooner reward (1 food pellet delivered immediately) or a larger-later reward (3 food pellets delivered after an 18-s delay). Results revealed sex differences in choice distributions and instrumental response latencies. Future research should examine the impact of sex in other species sensitivity to magnitude and delay reinforcement.
Using Computerized Image Analysis to Determine the Bubble Nest Size of *Betta Splendens*

The present study demonstrates the superiority of a computerized method for quantifying bubble nest size in male *Betta splendens*. Bubble nesting is a reproductively-relevant behavior in this species, and certain environmental variables (e.g., endocrine disruptors) can influence bubble nesting behavior. Investigators may wish to more closely examine the factors related to the presence and quality of bubble nests. In order to further study these factors, it was necessary to develop a reliable methodology to measure various parameters of bubble nests. Macros (extensions) to SigmaScan Pro 5.0 image analysis software were written to detect the number and volume of nests in a digital image. The macros were compared for reliability with standard measurement techniques involving rulers and plastic measurement grids. Results indicated superiority of the computerized technique over the standard techniques.

26. Jennifer Gamble, Stephanie Kofron, Angela Toscano, and Sarah White: Christopher Newport University
Co-author: Dr. Jeffery Gibbons

An Examination of Typicality and Audience Receptivity on Fading Affect Bias

The fading affect bias is the tendency for negative emotions to fade faster than positive emotions. Rothwell and Gibbons (2007) examined fading affect bias in men and women for alcohol and non-alcohol related events. Their results found that women's affect faded as expected, but men who consumed alcohol reported the greatest fading of negative emotions for alcohol related events than any other group, which was unexpected. The current experiment will replicate the Rothwell and Gibbons (2007) study and will expand upon it by examining audience receptivity and typicality. It is expected that low typicality and high receptivity will be a predictor of the fading affect bias for low frequency male drinkers.

27. Jacob Midkiff: Christopher Newport University

Exploring Adventure Based Therapy as Means Of Decreasing Conduct Problems in Children: A Ugrc-Cnu Funded Research Project

The purpose of this study is to explore treatment options for children with conduct problems, specifically supporting literature for Adventure Based Therapies (ABC). Researchers have estimated that between one and four million (2-6%) children in North America have been clinically diagnosed with conduct disorder (CD) and nearly twice as many, around 12%, with Oppositional Defiant Disorder (ODD). Of the more effective treatment approaches to conduct problems are those that use combinative programs addressing individual, school, community, and family applications. ABC has received much theoretical consideration, but little evidence-based support. Suggestions for future research, limitations, and ethical concerns for ABC programs, and research implications will be addressed.

28. Christopher Rice: Christopher Newport University

The Function and Motivation of Philanthropic Leaders: An Analysis of Giving

The purpose of this paper is to explore the philanthropic roles leaders assume when they decide to give their assets away. One approach to philanthropy and leadership is in the field of altruistic behavior. Altruistic behavior can be operationally defined as an act of giving time, money or energy without expectations of receiving something in return. Past and contemporary history shows that people of great wealth have been motivated to give their wealth away for public good, such as: Bill Gates, Andrew Carnegie and Oprah Winfrey. Literature of CEO's often reference their unjustified corporate salaries and bonuses. However, little research has investigated the basis of their giving. This research attempts to explore the psychological factors that dictate the motivations of some of societies' greatest altruistic givers.

29. Kathryn Hoey: Christopher Newport University

What is Music? A Bio-Psychosocial Approach to Music Perception

The purpose of this paper was to (a) explore music theory, (b) psychosocial effects, (c) behavioral attributes and (d) neuronal brain scans. Music involves one of humans' primary sensory abilities – audition. Research showed that the congruity between music and mood has an influence on memory. Also, brain structures associated with food and sex are similarly activated by music. Not surprisingly, marketers use music in a variety of venues to influence consumer behavior. These findings are described within a broad range of psychological theory, such as: volley theory and place theory, context-dependent leaning, brain-modularity theory, and consumer behavior theory.

30. Stephen Short: Christopher Newport University
Co-authors: Amanda Powell, Ruth Yeh, Dashawn White and Brianna Young

The Relation between Modern Racism, Christian Orthodoxy, and Islamaphobia

Past research has consistently shown Christian orthodoxy to be correlated with religious fundamentalism (Hunsberger et al., 1996), which is also correlated to prejudice (Kirkpatrick, 1993). Furthermore, research has found modern racism to be significantly correlated with both anti-Semitism (Echebarria-Echabe & Guede, 2000; Dunbar, 1995) and anti-Arab prejudices (Dunbar, 1995). Unfortunately, many Americans falsely identify Muslims as Arab, even though the vast majority is not (Gottschalk & Greenberg, 2008). A scale has been developed to measure anti-Arab prejudices (Echebarria-Echabe & Guede, 2000). However, this scale does not particularly measure anti-Islam beliefs. The Islamaphobia scale (Lee et al., 2008) was developed to measure fear and hostility towards Muslims and the Islamic faith. The present study examined the relation between Islamaphobia, modern racism and Christian orthodoxy in a sample of undergraduate college students (n = 115). Results found Christian orthodoxy and modern racism to be correlated to Islamaphobia.

31. Laurel Watts: Sweet Briar College

Politics in the City of Churches: The Political Engagement of Christian Congregations In Lynchburg, Virginia

Lynchburg, Virginia is notoriously known as the home of the late Reverend Jerry Falwell, founder of Thomas Road Baptist Church (TRBC) and Liberty University, among other evangelical organizations. Perhaps the most notable product of Falwell’s career, however, was the Moral Majority, a conservative political organization that lobbied for legislation reflecting Christian values. Though the Moral Majority disbanded in the late 1980s, Falwell’s institutions—including the lobbying organization, Liberty Alliance—have continued to expand and seek political influence. This presentation highlights findings from survey research conducted in the city of Lynchburg in order to determine 1) the proportion such politically engaged Christian churches, 2) their level of engagement, and 3) the ideologies directing their influence. Interestingly, survey responses from area head pastors reveal that churches such as TRBC cannot be seen as representative of Lynchburg’s Christian institutions as a whole, as many congregations aim to exert a liberal political influence.

32. Kimberly Hughes: Roanoke College

Views of Homosexuality in Protestant Congregations: An Exploratory Study of Local Churches

Homosexuality is one of the most controversial topics within the church community today. This study attempts to understand views of homosexuality in Southern Baptist and Lutheran churches though an observation of worship and focus groups within those observed congregations. Data are then analyzed through denominational and Biblical framework, applied to Durkheim’s collective consciousness, and understood best through the theory of localism. Finding one church out of four in Southwest Virginia that accepts homosexuality and having eight other churches refuse to participate in the study gives an understanding of the importance of allowing local churches to make decisions and focusing on human dignity instead of scriptural inerrancy.

33. Holly Keener: Radford University

In-Laws Vs. Out-Laws: An Analysis of In-Law Communication

In-law relationships are something that almost every individual experiences at least once in their life, but little research has been accumulated regarding this topic. This project seeks to discover more information regarding in-law relationships through a communication perspective by examining popular media culture through an analysis of films that highlight in-law relationships. This project touches on various communication phenomena related to the topic such as communication theory, gender & diversity issues as well as the role of humor and power in this at times complicated interpersonal relationship.

34. Kristina M. Owens: Christopher Newport University

Women’s Shoes and the Feet that Wear Them: History, Culture, and Medical Complications of Fashionable Footwear

Women have often been stereotyped as shoe fanatics. Recently, in objectification theory, body image has been transformed from viewing the body as a whole to viewing ideal images of specific body parts. This paper attempts to put women’s shoe preference into a larger context of analysis. Specifically, the interaction between the shoe and the foot will be examined from a historical, cultural, medical, and psychological perspective. For centuries, regardless of irreversible health consequences, women choose to sustain their shoe fashions. A discussion concerning the tension
between women’s shoe preferences and the health effects of shoe choice (high heels, flip flops, and clogs) will be presented.

35. Nichole Spring: Christopher Newport University  
Co-author: Dr. Deanna Carpenter

Sex Toy Parties: Gender Differences in Methods of Sexual Expression
Since their introduction, sex toy parties have become a popular option for women to obtain sexual products. The primary purpose of this research was to examine variables that may help explain why women participate in sex toy parties, and why no comparable phenomenon appears to exist among straight men. Relevant influences may include gender differences in use of social support, traditional gender roles surrounding sexuality, biological factors, and sexual self-schemas, or how an individual views their sexuality (Andersen, 1994). Past research suggests that women have a lower sex drive than men, think about sex less frequently, and are more likely to have difficulty achieving orgasm (Baumeister, Catanese & Vohs, 2001). Women’s participation in sex toy parties is a phenomenon that appears to deviate from gender schemas and could go unnoticed, thereby exaggerating gender stereotypes which could have negative consequences for both sexes.

36. Carolanne Bonanno: Sweet Briar College

Reviving Alternative Photography: The Bromoil Process
The archaic photographic process called bromoil has existed for an entire century, yet only a small number of people practice it today. The purpose of my research was to learn the history and techniques of the process in the interest of creating fine art. The process, which was invented in 1907 as an alternative to an earlier printing technique, involves producing gelatin silver prints on fiber-base paper, treating the paper in a bleach solution, and then applying oil-based ink to the surface to recreate the image. Bromoil is a visually versatile medium, as there are many methods possible to apply the ink, each resulting in a different “feel” to a print. As I worked with the medium, I took advantage of this property and experimented with pulling different moods out of the same image simply by changing the inking method.