



PROGRAM SCHEDULE WITH ABSTRACTS

University of Mary Washington
Student Research and Creativity Day
APRIL 17, 2012

Schedule of Events

8:30 a.m. - 9:30 a.m.	Presenter Registration	Great Hall
	Poster and Art Display Set up	Great Hall
9:00 a.m. - 11:45 a.m.	Oral Presentations	Meeting Rooms 1-4, Red Room
12:00 p.m. - 1:15 p.m.	Presenter Registration	Great Hall
12:00 p.m. - 12:45 p.m.	Poster Session and Art Display	Great Hall
12:45 p.m. - 1:20 p.m.	Original Musical Performance	Great Hall
1:30 p.m. - 3:30 p.m.	Oral Presentations	Meeting Rooms 1-4, Red Room
4:00 p.m. - 5:00 p.m.	Poster and Art Display Pick up	Great Hall
5:00 p.m. - 7:00 p.m.	Studio Art & Art History Presentations	Melchers Hall, 107

Studio Arts & Art History

5:00 p.m. – 7:00 p.m.

Ashleigh Buyers	Pixels (Rethinking the Mosaic)	Jesionowski
Abi Candler	Mummy Mania: The Confluence of Art, Archaeology, Superstition, and Science	Dabb
Kol Giessel	Hans Bellmer and the Imagination	Dreiss
Lauren Gottschlich	Case Studies in Authenticity: Northern European Paintings	Dabb
Carolyn Higgins	The Competition between Leonardo da Vinci and Michelangelo in the Palazzo della Signoria (1502 to 1506): The Preparatory Drawings	Och
Lauren Kyser	Assyrian Palace Sculpture from Nimrud	Dabb
Katie Rosinski	Housed/934B	Garmon

Oral Presentations

Session I

9:30 – 10:45

Red Room	Chair: Dr. Jeff McClurken	Digital History: James Farmer Lectures	Laura Donahue Caitlin Murphy Michelle Martz Kelsey Matthews	McClurken
		Digital History: The James Monroe Museum Political Cartoon Archive	Heather Thompson Rachel Icard Rachel Luehrs Andrew Becken	McClurken
		Historic Buildings of the University of Mary Washington	Cameron Carroll Cassandra Trumbetic Kay Washechek Kayle Partenheimer Samantha Warring	McClurken
		Southeastern Virginia Historical Markers	Sara Eye Lindsay Smith Ryan Montgomery Michael Powers	McClurken
Room I	Chair: Dr. Julius Esunge	Revisiting the Basel Problem	Marianne Dubinsky	Esunge
		Stable Distribution and the Real Estate Market	Catherine O'Doherty	Esunge
		Black-Scholes Option Pricing Model: Analysis, Approximations, and Applications	Rebecca Presor	Lee
		Assessing Empathic Accuracy in College Students	Amy Walker Sarah McDermott Hillary Lions	Nissim-Sabat
Room II	Chair: Dr. Andrea Livi-Smith	The Sacred Path: A Radio Series	Erin Bresson	Aminrazavi
		Plunked: The Development of a Preservation Planning Educational Board Game	Elizabeth Crowe	Livi-Smith
		Authenticity of Celticity	Michael Kessler	Gable

Session II

11:00 – 12:15

Room I	Chair: Dr. Krystyn Moon	"Is it Time to Upgrade? The Technological 'Participation Gap' and Fairfax County Public Schools"	Dana Cazan	Moon
		"Fuck Yeah" Trans* People: The Transgender Community on Tumblr	Charles Girard	Moon
		Women and Charity in Spain: Creating a Database of Women's Journals During the Spanish Civil War	Madeline Albrittain Sarah Abbott Katie Lebling Lara Pugh	Lewis
		The Debate Over Cultural Representation: The Pittsburgh Courier and the NAACP's Protest of the Amos 'n' Andy Show	Michelle Martz	Rigelhaupt
Room II	Chair: Dr. Judith Parker	Pedagogical Strategies and Chaucer	Jonathan Doblax	Kennedy
		Brawny: It's more than just a paper towel	Zehra Yousofi	Reddy
		Reading Code	Dylan Lederle-Ensign	Whalen
		"Um...I don't really ['wllwi] want to do that one because... um...': Fillers and Phonetic Variation in the Speech of an 8-year old child."	Kiersten Anderson Ali McClellan	Parker
Room IV	Chair: Dr. Keith Mellinger	DS106: From Class to Documentary	Leighanne Ellis	Groom
		The Route 29 Bypass Study in Charlottesville, Virginia using Geographic Information Systems Modeling	Larry Michael	Rizzo
		The effect of the herbicide atrazine on gene regulation in the zebrafish, Danio rerio: a microarray analysis.	Kristen Lewis	Baker
		Anti-Blocking Sets	Kelly Scott	Mellinger

Art Display & Poster Session

Refreshments Served

12:00-12:45pm

Gregory Baugher	Szulczewski	Continuing Acid Mine Drainage Impacts on the Environmental Health of the Soils, Streams, and Vegetation in a Virginia Ecosystem
Erin Boggs	Kilmartin	A Cognitive Dissonance Intervention to Reduce Sexism in College Men
Elyse Clark	Kisila	Analysis of the Environmental Evolution of Lake Moomaw
Robert Clark	Kisila	Spatial Analysis of Soil Erosion and Sediment Fluxes with Isotopic Fingerprinting: A Watershed Study of Three Rappahannock River Tributaries in Stafford, Virginia
Cole Eskridge	Grana	Phylogenetic Analysis and Diversity of Free-Living Terrestrial Nematodes in Virginia
Bruce Fredette	Wessels	Building a Laser Harp
Darren Getts	Nguyen	Inexpensive spectrometers for teaching and research
Katelyn Gibbs	McBride	Cyclic eating: The interaction among guilt, stress, and restraint
Erin Gillin	Fuller	Rehabilitation of rare species populations
Drema Khraibani	Szulczewski	Examination of the Potential for Wind Energy in the Middle East
Asma Latif	Loesser	The Effect of Exercise and Estrogen on Atherosclerosis-Prone Mice Hearts
Carly Maalouf	Stull	Decoding the Idea—Notions of Self, Community, and Transformation in Performance
Bess Ten Eyck	Stull	

Marianne Mannix	Szulczewski	Continuing Acid Mine Drainage Impacts on the Environmental Health of the Soils, Streams, and Vegetation in a Virginia Ecosystem
Kelsey Meyer	O'Dell	Effect of Cell Phone Radiation on Gene Expression in Glioblastoma Cells
Mina Recta	Szulczewski	Continuing Acid Mine Drainage Impacts on the Environmental Health of the Soils, Streams, and Vegetation in a Virginia Ecosystem.
Maureen Rutter	Nguyen	A study of acousto-optical modulation
Mallory Somerset	Fallon	Sounds of Old English:A Technological Approach to Linguistic Scholarship
Molly Sullivan	Rettinger	How the Dialect of Speaker Influences the Level of Guilt/Responsibility Attributed to That Speaker
Katy Taylor	Rettinger	
Rudy Abate	Rettinger	
Henry Talley	Hayob	Clay Mineralogy of Estuarine Cores Collected from the Tidal Reaches of the Rappahannock River, Tributary to the Chesapeake Bay
Kelsey Voss	O'Dell	Identifying Target Genes in Estrogen Receptor Pathways Resulting from BPA Exposure in Breast Cancer
Margaret Walker	Griffith	Effects of dam removal and planted species on invasive riparian vegetation.
Kara Westerfield	Tibert	Schlerochronology and Stable Isotope Values from Crassostrea Virginia from Late 18th Century Middens at Stratford Hall, Virginia
Frank Womble	Wessels	Magnetic filtration of biological solutes using a microfluidic device
Marissa Yoder	Zhao	To What Extent Did Mad Cow Disease Affect Demand for Chicken in the United States?

Original Musical Performance

12:45 p.m. – 1:15 p.m.

Faculty Mentor: Mark Snyder

Rebecca Brown.....Crashed

Paige Naylor.....Homescape

Stephen HennesseyFantasia for Clarinet and Amplified Guitar

John L. WhiteFantasia for Clarinet and Amplified Guitar

Chelsea ThomasFantasia for Clarinet and Amplified Guitar

Session III

1:30 – 2:20

Red Room	Chair: Dr. Marcel Rotter	National Socialist Germany and the Ancestral Argument	Anne Zimmerman	Rotter
		"The Saviors of Missouri": St. Louis' German Community During the Civil War	Rebecca Welker	Rotter
		The French Obsession with Ernst Jünger	Julia Lanzarone	Rotter
Room I	Chair: Dr. Virginia Mackintosh	Program Evaluation: Horticultural Therapy	James Meissner	Mackintosh
		ESP: The Effect of Confidence on Biocognition	Megan Heitman	MacEwen
		The Effect of Professional Sports Salaries on Performance Enhancing Drug Use in College Sports	Matthew Cronin	Ray
Room II	Chair: Dr. Randall Helmstutler	When Dialogue Fails: Peruvian Social Movements and Extractive Industries	Amy Smetana	Castillo
		On the Contractibility of Finite coH-Spaces	Ryan Vaughn	Helmstutler
		Analyzing internet coverage in Spotsylvania: A spatial approach	Robert Crawford	Rizzo
Room IV	Chair: Dr. Marisa Martinez-Mira	The Curious Case of Ecuador: the Influence of Currency on Nationalism	Jillian Trent	James
		How does the European Commission support the promotion and preservation of Basque, Catalan, and Galician in Spain	Lorraine Harbison	Martinez-Mira

Session IV

2:30 – 3:30

Red Room	Chair: Dr. Elizabeth Larus	Science versus Politics: the Case of HPV Vaccine Mandates)	Kristen Lewis	Cooperman
		American Foreign Policy: The Key to Nuclear Proliferation?	Ryan Hayes	Singh
		The United States and South Korea: Danger in Diverging Foreign Policy towards North	Shirley Martey	Larus
Room I	Chair: Dr. Angie Pitts	Venerating Phoibos: The Instances of Praise in the Rhapsodic Hymn to Apollo	Amy Eltringham	Pitts
		The Ignored Gray Areas: An Analysis of the Need to Reinterpret Gender Relations in Islam	Shirin Afsous	Asadi/Aminrazavi
		Mahmoud Ahmadinejad: The President Elect of the Hidden Imam	Brittany Kyser	Aminrazavi
		Which Comes First: The Tree or the Forest? A Consideration of the Ecocentrism v. Biocentrism Debate	William Bennett	Mikhalevsky
Room II	Chair: Dr. Suzanne Sumner	Women In Afghanistan and Their Need for an Education	Paige McKinsey	Sumner
		Racial Inequalities of Incarceration in America	Callie Dolloff	Vasey
		Civil Rights in the Queer Community	Cara Wimberley	Vasey
Room IV	Chair: Dr. Paul Fallon	Music, the Underground, and the Russian Soul: Musical Protest in the Soviet Era	Alexandra Plotnikov	Gable
		To Fear or to Trust? The Relationship Between the Latino Community and the Police	Amy Smetana	Kim
		Exploration of the Modern Search & Matching Theory	Johnathan Blake	Greenlaw

Session V

3:30 – 4:30

Red Room	Chair: Dr. Chris Foss	The Language of Rape: Margaret Mitchell’s Defense of Spousal Rape in Gone With the Wind	Shirin Afsous	Richards
		Creativity and Reading Ability of two 7-year old Twins	Jessie Davis-Lee Jamia Jordan	Parker
		The Dynamic Muse: The Literary and Spiritual Personifications of Creativity	Elanor Kindred	Kennedy
Room I	Chair: Dr. Debra Steckler	Hovering or Helping?: The Effects of Helicopter Parenting and Autonomy Support on College Students	Haley Miles-McLean Kathryn Geary Taryn Tashner Kathryn Rizzo	Liss/Schiffrin
		Intensive Mothering Outcomes for Women	Kathryn Rizzo	Liss/Schiffrin
		Emerging Adulthood: A Three Generational Study	John Ackley Tyler Hoehn Kasi Hunnicutt Amanda Manno	Steckler
Room II	Chair: Dr. Robert Barr	Identity Politics of the Blues	Scott Neill	James
		They're Coming to Get You, America: The Popularity of Zombie Films and National Fear during the Cold War and the War on Terror	Cameron Carroll	Ferrell
		Media Coverage of Iraq and Iran: Defining the Warpath	Ryan Hayes	Farnsworth
		The Women’s Movement in Latin America: From Suffrage to the Modern Era	Jessica Jefferson	Barr
Room IV	Chair: Dr. Jessica Locke	Pro-Choice, Pro-Life, Pro-Child? A comparison of Legislator's commitment to Fetuses with their commitment to Children	Anna Halbrooks-Fulks	Cooperman
		Media, Resources, and Regimes in Arlington County: How Affordable Housing is Framed in an “Ideal” Poverty Ameliorating Locality	Christopher Blough	Cooperman
		Cultural Mestizaje in Contemporary Chicana Literature	Katherine DeMazza	Locke

Abstracts

Shirin Afsous

Aminrazavi

The Ignored Gray Areas: An Analysis of the Need to Reinterpret Gender Relations in Islam

The focus of my research is on the legal implications presented in Quranic verses that specifically argue against violence against women, sexually or physically. In light of recent stereotypes concerning the role of women in predominantly Muslim societies, as well as the overall impression the West has portrayed to societies regarding the social placement of women beneath men in the Middle East, this project hopes to clarify the gray areas of Islam. The argument is not that Islam is unbiased or perfect with regards to gender relations and negotiations, but rather, like everything else in the world that surrounds us, Islam has gray shades that need reinterpretation.

Shirin Afsous

Richards

The Language of Rape: Margaret Mitchell's Defense of Spousal Rape in *Gone With the Wind*

Rape as a mechanism of power asserts the dominance of one individual over the other mentally and physically. In the instances of male-perpetrated rape, the female victim loses her autonomy as an individual because she becomes a mode of sexual expression and release for her assaulter. Modern society deems discussions of rape necessary in courtrooms and areas of legal influence. Fiction writers, as well, often utilize rape as a means of illustrating certain ideologies regarding the interactions between men and women. In her novel *Gone With the Wind*, Margaret Mitchell presents her audience with an allusion of an image of marital rape. She achieves the depiction of this alluded rape through the language and diction used to describe the relationship between a husband and wife. Her representations of rape convey the author's reaffirmation of established gender norms both during the Civil War era and her own lingering anxieties during the 1920's. Mitchell depicts her most devastating affirmation of rape as it relates to power and gender roles in her portrayal of the rape of Scarlett O'Hara at the hands of her husband, Rhett Butler. The language employed by Mitchell to discuss Scarlett's thoughts and feelings the morning after her rape confirms the author's traditional views regarding marital rape as well as her celebration of male dominance in sexual interactions.

**Madeline Albrittain,
Sarah Abbott, Katie
Lebling, & Lara Pugh**

Lewis

Women and Charity in Spain: Creating a Database of Women's Journals During the Spanish Civil War

This undergraduate research team has been working with Dr. Elizabeth Lewis this semester on her project, *Women and Charity in Spain 1786-1939*. In preparation for a research trip that this group will take to Spain in May, we have been researching as a group women and charity during the Second Republic and the Spanish Civil War in Spain. Our main task has been to create a database cataloging the contents of a women's journal, *Mundo femenino*. This presentation by group members Sarah Abbott, Madeline Albrittain, Katie Lebling and Lara Pugh, will give a brief introduction to the topic of women during Spain's Second Republic. We will discuss the creation of the database, and some of our results of our research.

Kiersten Anderson

Parker

**“Um...I don’t really [’wɪlwi] want to do that one because...
um...’: Fillers and Phonetic Variation in the Speech of an 8-year
old child.”**

This naturalistic, observational study focused on the spoken language production of an 8-year-old child. The study entailed collecting oral data over multiple sessions to identify and then analyze a subset of the data for consistently prominent linguistic patterns. The researchers chose to focus specifically on the child’s articulation of the glides (/l/ and /r/) and the distribution of pause fillers in the child’s production of a personal oral narrative. Results of the study supported preexisting literature on child language and demonstrated the differences between syntactic planning in children and adults.

Johnathan Blake

Greenlaw

Exploration of the Modern Search & Matching Theory

This research explores the Modern Search & Matching Theory of Macroeconomics in effort to understand the current state of the labor market in the United States economy. The theory, authored by Nobel Laureate Christopher Pissarides, assumes that labor is a good that goes through a trading process. This process is not instantaneous as it takes time for firms to find workers and workers to find firms. Thus, the labor market experiences frictions at any given point in time. The resulting effect is a non-zero unemployment rate at any given point in time, known as the natural rate of unemployment. This research has taken the Modern Search & Matching Theory from its theoretical state and applied it to the most recent economic recession (late-2000s) in effort to understand how the recession affected the labor market. It has been found that the natural rate of unemployment, the rate at which the economy is at full potential, has increased from 4.8% to a range of 6.3-7.8%. Consequently, monetary policy and economic stimulus has become less effective than it was prior to the economic recession.

Christopher Blough

Cooperman

**Media, Resources, and Regimes in Arlington County: How
Affordable Housing is Framed in an “Ideal” Poverty
Ameliorating Locality**

Literature on poverty amelioration suggests increasing levels of affordable housing. Conventional affordable housing theory argues that low-income housing levels are a function of a locality’s economic resources and political environment, while regime theory argues for the dominant power and interests of urban regimes, which are made up of policy and business elites whose interests may differ from poverty interests. This study uses a content analysis of news sources based on an understanding of media effects theory, which argues for the significance of framing and priming effects in determining policy outcomes. Evaluations of media sources covering urban redevelopment in the Columbia Pike region of Arlington County provide support for the argument that elite regime interests may be a more significant determinant of low income housing than resource and environmental factors.

Erin Boggs

Kilmartin

A Cognitive Dissonance Intervention to Reduce Sexism in College Men

The overestimated acceptance of sexism, as well as the ambiguity of what qualifies as sexist, among college males may pose a hindrance to challenging these damaging attitudes. Researchers investigated the power of a cognitive dissonance intervention to reduce sexist attitudes in Southeastern U.S. undergraduates. All participants completed pre-experimental measures for hostile sexism, benevolent sexism, and rape supportive attitudes. Participants in the dissonance intervention critiqued sexist ideology through verbal role playing and a written exercise. The efficacy of this experiment was measured two weeks after the initial intervention through post-measures.

Erin Bresson

Aminrazavi

The Sacred Path: A Radio Series

The Sacred Path: A Radio Series is an independent research project made possible by a research grant from the Leidecker Center for Asian Studies at the University of Mary Washington. The series consists of seven interviews with leaders in Religious Studies fields and religious leaders from varying traditions. The Sacred Path: A Radio Series focuses on the path of religious individuals seeking the divine. The series includes interviews with: Dr. Andrew Newberg leading Neurotheology researcher and author of "How God Changes Your Brain: Breakthrough Findings from a Leading Neuroscientist", Rabbi Daniel Zemel Senior Rabbi of Temple Micah and contributor to The Washington Post, Muhammad Faghfoory, Ph.D professor at George Washington University, Robert Eisen, Ph.D Religion Department Chair and professor at George Washington University, and many more. The Sacred Path: A Radio Series is published online at thesacredpath.umwblogs.org and broadcasted the University of Mary Washington's radio station, WMWC.

Rebecca Brown

Snyder

Crashed

"Crashed" is a short piece exploring electronic modulation, using techniques from early electronic music with modern computer music methods. The piece is named after its biggest hurdle - it regularly crashed the audio workstation while I was writing it.

Ashleigh Buyers

Jesionowski

Pixels (Rethinking the Mosaic)

My independent study is focused on the relationship that modern visual technology shares with older forms of visual technology. I am fascinated by the correlation between the two types, the modern digital pixel and smalti or glass tile tessera. Both mediums are used in similar ways. They are individual parts that come together to form a semi-complete image, the gaps filled in with the mind's eye. Modern technology has taken this "mosaic" style and perfected it to the point where we are not aware of its the gaps. Thus the connection between the two types of imagery is often lost. My pieces serve to bring out this correlation and remind us that the results of ancient mosaics are surround us and are frequently used in our everyday lives.

Abi Candler

Dabb

**Mummy Mania: The Confluence of Art, Archaeology,
Superstition, and Science**

This is an interdisciplinary study of ancient Egyptian mummies that finds its roots in the art historical and archaeological significance of the ancient Egyptian culture but spreads much further than that to prove the value of this history in benefiting and informing the modern world. I intend to address the “art” of mummification as practiced by ancient Egyptians, including the methods for preserving bodies, the evidence we have of mummies themselves, their wrappings, the coffins and sarcophagi they were housed in, and the primary sources that emphasize significance of this preservation effort. The study of mummies has been widely practiced throughout history, but relating them to current medical science is a specialized and recent development that comes a long way from the elaborate “unwrapping parties” of the 19th century. I draw inspiration from the works and research of Egyptologist Rosalie David, because she pioneered the biomedical study of mummies and contributed enormously to the knowledge and processes we have for the scientific research of this topic today.

Cameron Carroll

Ferrell

**They're Coming to Get You, America: The Popularity of Zombie
Films and National Fear during the Cold War and the War on
Terror**

Zombies are particularly suited to the ideological nature of the Cold War and the War on Terror, as American perceptions of the differing ideologies involved are of unreasonable monsters – just like zombies. Zombies in American cinema embody public anxieties and evolve to reflect the cause of national paranoia and collective fear. The Cold War and the United States after the September 11 terrorist attacks in 2001 coincided with the two greatest spikes in zombie popularity. This presentation compares and contrasts the historical context that sets the backdrop for the attraction of the undead to American audiences during these periods. The nature of the zombie as representative of a fear of irresistible masses has political, economic, and cultural connotations. The multi-faceted foreign threats that the zombie represents makes it ideal for exemplifying periods of collective paranoia towards an invading external threat manifested as an unexpected internal threat.

Cameron Carroll

McClurken

Historic Buildings of the University of Mary Washington

The University of Mary Washington recently celebrated its centennial anniversary and for those hundred years of development, the historic buildings of the university serve as a timeline of the school’s changing social and academic atmosphere. Each building on the Mary Washington campus has a unique history and were named for auspicious individuals in the history of the university and the state of Virginia. This presentation will educate the community about the developmental narrative of the university and the how the contributions of the people the buildings are named for helped Mary Washington become the academic icon it is today. Each university president’s story added their own ambitions and visions for the school to the landscape of campus. Each meticulously planned name for the buildings honors generous benefactors, forward-thinking politicians, and university faculty that made their irreversible mark on the school. The University of Mary Washington is infused with the history of the ages it has witnessed and the extraordinary buildings on campus stand as stalwart monuments.

Dana Cazan

Moon

**"Is it Time to Upgrade? The Technological 'Participation Gap'
and Fairfax County Public Schools"**

In the United States, government officials and educators today view public education as a bridge to alleviate social inequalities. With the emergence of the digital divide in the mid-1990s, however, policy makers and parents alike turned to schools to prepare students coming of age in the digital world by addressing this new form of social stratification. Since then, a technological participation gap has emerged among today's youth that mirrors historical patterns of social stratification. Through the framework of Pierre Bourdieu's theory of education and social reproduction, this paper argues public education—without changes in curriculum or school policy—runs the risk of expanding the participation gap and perpetuating ongoing class divisions and conflicts.

Elyse Clark

Kisila

Analysis of the Environmental Evolution of Lake Moomaw

Lake Moomaw, located in the Blue Ridge Mountains, is a pristine reservoir with extreme slopes that is surrounded by undeveloped, protected land. RUSLE/SDR soil erosion models were used to estimate soil erosion rates within the watershed. Three sediment cores were used for ^{210}Pb analysis of sediment accumulation rates and trace metal concentrations. Trace metals Enrichment Factors (EF) were calculated relative to crustal concentrations to determine the extent of contamination in the sediments. Lastly, a geophysical survey was utilized to quantify sediment thicknesses and bathymetry of the lake bottom. The reservoir sediment accumulation rates ranged from $0.335 \text{ g/cm}^2/\text{yr}$ to $0.604 \text{ g/cm}^2/\text{yr}$. Lake Moomaw is moderately enriched with Cu; however, this is most likely due to local variations in the basin's geology. The geophysical survey shows that most of the sedimentation in the lake is coming from bed load and being deposited at the mouth of the main river draining into the lake. Compared to regional surface water bodies, Lake Moomaw has lower sediment accumulation rates and low trace metals input due to the current pristine nature of the watershed. The steep slopes in the basin make this reservoir highly vulnerable to significant increases in erosion and sediment fluxes.

Robert Clark

Kisila

**Spatial Analysis of Soil Erosion and Sediment Fluxes with
Isotopic Fingerprinting: A Watershed Study of Three
Rappahannock River Tributaries in Stafford County, Virginia**

With the ever increasing human alterations of aquatic basins in the form of construction and agricultural production, soil erosion and associated increased sediment fluxes negative impact of aquatic systems is a growing concern. To implement better mitigation it is necessary to understand the major factors that play critical roles in erosion, transport and sediment fluxes. GIS based spatial modeling and isotopic analysis was used to evaluate both naturally occurring and anthropogenic forces on three sub-basins of the Rappahannock River, the Claiborne Run, Little Falls Run and Horsepen Run. The RUSLE/SDR results show that 818, 661 and 220 tons/y are currently being delivered to Claiborne Run, Little Falls Run and Horsepen Run respectively. The results are directly correlated to the level of anthropogenic impact, where Horsepen Run's lower value is depicting its highly vegetative watershed. To identify critical runoff areas, isotopic fingerprinting using ^{210}Pb is currently being used in various LULC areas of the three tributaries' sub-watersheds. The preliminary results shows that Claiborne and Horsepen have suspended

load 210Pb values characteristic of disturbed environments with 10.71 dpm/g and 10.81 dpm/g respectively. The analysis also shows that farmland areas have a higher erosion rates than forested and grassland areas.

Robert Crawford Rizzo

Analyzing Internet Coverage in Spotsylvania: A Spatial Approach

Spotsylvania County, located just south of Fredericksburg, VA, has recently received proprietary information from Comcast Cable that relates to Comcast infrastructure which has been built within the county. Using ArcGIS, the proprietary data was used in conjunction with county data to establish which addresses may or may not have internet coverage. Furthermore, this information was used to determine areas where there was enough population to warrant expansion of services. Using basic GIS analysis, we should be able to provide the county with the ability to make more accurate decisions regarding cable and internet access to its citizens at a greater detail than it's ever had before.

Matthew Cronin Ray

The Effect of Professional Sports Salaries on Performance Enhancing Drug Use in College Sports

The use of performance enhancing drugs in sports has always been a significant issue that needs to be addressed. This study utilized ordinary least squares regression analysis on NCAA drug testing data from 2005-2010 in order to determine if potential sports salaries effect the amount of positive drug tests within a certain college sport. Results show that potential salaries or future monetary incentives play little role in performance enhancing drug use of college athletes. However the amount of strength required for each sport and the sports participation rates are lead variables in determining the amount of drug use in each sport.

Elizabeth Crowe Livi-Smith

Plunked: The Development of a Preservation Planning Educational Board Game

Seniors of the Spring 2012 preservation planning lab have developed an educational board game called "Plunked" that combines concepts and methods of planning with the creativity, design, and fun of a board game. The purpose of the project is to educate students and members of the general public about preservation planning goals and values. The creative process began with playing other strategic and educational board games such as Settlers of Catan, Carcassonne, SimCity, Magic the Gathering, Ticket to Ride, Illuminati, and Stone Age. From there, we compiled a list of elements that comprise a successful and intellectually stimulating game that provided direction and inspiration for our own project. We then deliberated over which preservation planning concepts we felt were most relevant to our audience and incorporated these aspects into gameplay. The class then divided into teams to take on tasks including design, rules, and objectives. Extensive playtesting is currently helping to shape and refine the final product. We hope that with the creation of this game, people without a background in historic preservation will gain a better understanding of preservation planning and how it can impact their lives.

Jessie Davis-Lee Parker

Creativity and Reading Ability of two 7-year old Twins

Jamia Jordan

This study seeks to examine a number of intellectual and linguistic capabilities of two seven-year-old twins, one of whom has Down Syndrome. To gather data on creativity and reading ability, the researchers scheduled three sessions with the twins, eliciting verbal responses from the children through numerous activities, such as playing games, telling stories, and reading aloud. By comparing the subjects to their respective counterparts, the researchers discovered that the boy was advanced for a typically-developing seven-year-old and the girl was advanced for a seven-year-old with Down Syndrome.

Katherine DeMazza Locke

Cultural Mestizaje in Contemporary Chicana Literature

Historically, the figures of la Malinche and the Virgin of Guadalupe have represented opposing archetypes of femininity in Mexican literature and culture. While la Malinche evolved from her historical role to represent traditionally undesirable female qualities such as overt sexuality and betrayal, the figure of the Virgin of Guadalupe has traditionally represented feminine ideals of purity, passivity and motherhood. For the leaders of the Chicana feminist movement, both figures have had equally pernicious effects on the consciousness of the modern Chicana. By limiting depictions of the female experience to these extreme opposites, Chicanas have been pressured to discount elements of their experience that do not lie fully within the confines of a singular tradition. Due to the pervasive nature of these figures in Chicano/a culture, it has been necessary to re-assign their significance in order to eliminate that pressure and form a new cultural identity. The new Chicano/a mestizaje takes ownership of both American and Mexican heritages, rejecting the cultural polarity of past generations which labeled Chicana women as maternal Guadalupes or traitorous Malinches. However, as current generations reject these notions and learn to live in a “cultural borderland”, so to do their literary and cultural archetypes begin to represent not either purity and passivity or sexuality and sin, but a confluence of them both.

Jonathan Dobliz Kennedy

Pedagogical Strategies and Chaucer

The study on Geoffrey Chaucer and his works will be divided into three sections though which I will focus on a specific aspect of Chaucer and his relevance within the confines of the classroom. First, I will look into the grammar that is required for students to gain a confidence as well as knowledge of the language and syntax that the author utilizes. Secondly, I will create lesson plans, activities, and teaching aids that will help the various students to understand the nuances of Middle English. Next, I will focus on the pedagogical methods that I can utilize within the classroom. Finally, I will view Chaucer and his texts from the lens of teacher as well as students of the material, thus introducing the text. I will break the texts down into more manageable portions for middle as well as high school students. This will be a unique study that will allow me to combine my two passions- Chaucer and his texts with that of teaching.

Callie Dolloff

Vasey

Racial Inequalities of Incarceration in America

This presentation is on the racial inequalities of incarceration in America and how those inequalities have pervaded the American Criminal Justice System and American culture. This topic is hugely important in understanding why the race, gender, and class hierarchies continue to remain in the basis of our society.

Laura Donahue

McClurken

Digital History: James Farmer Lectures

Group Project: Laura Donahue, Kelsey Matthews, Michelle Martz, Caitlin Murphy James Farmer, Civil Rights leader and founder of the Congress of Racial Equality, also taught at Mary Washington College (now University of Mary Washington) from 1984 to 1998. James Farmer's thirteen reflection lectures were filmed by a local news channel WNVT-TV Channel 53. Under the guidance of Dr. Jeffrey McClurken in the University of Mary Washington Adventures in Digital History 2012 seminar Laura Donahue, Michelle Martz, Kelsey Matthews, and Caitlin Murphy constructed a digital archive for the James Farmer Lectures. These lectures have been edited, uploaded, transcribed, and summarized for a digital archives website.

Marianne Dubinsky

Esunge

Revisiting the Basel Problem

In 1644, Italian mathematician Pietro Mengoli posed a question that would perplex mathematicians for almost 100 years: what is the sum of the reciprocals of the perfect squares? It was Leonhard Euler who later developed a rigorous proof concluding that the sum of the reciprocals of the perfect squares is the quantity pi squared divided by 6. Since Euler's discovery, numerous methods for solving the Basel Problem have been developed. I will outline a probabilistic solution to the Basel Problem which hinges on the distribution of certain random variables. The beauty of this method is that it provides a very nice connection between several branches of mathematics.

Leighanne Ellis

Groom

DS106: From Class to Documentary

My original idea was to create a series of video in the style of a mockumentary, and at the same time further various web design and computer skills. Over the course of the semester, I ran into a number of unforeseen and challenging obstacles, from which I learned valuable lessons as I struggled to overcome them, including steep learning curves in the video editing software, setting up a dynamic website, and a broken ankle.

Bruce Fredette

Wessels

Building a Laser Harp

The laser harp requires basic physics (optics and electronics), computer programming skills and electronic music comprehension to create a musical midi interface. This laser harp requires gesture recognition technology. Additionally a real harp will only create one set of tones, but by having a midi interface, the laser harp can move from classical tones to new age technological tones. Digital sensors allow for faster tone recognition over key presses or string plucks.

Darren Getts

Nguyen

Inexpensive spectrometers for teaching and research

Experimental activities in the undergraduate physics curriculum often suffer from a lack of connection with the courses they are designed to support. This paper connects the historical context of modern physics development and the underlying physical principles to a set of experiments in atomic spectroscopy based on commercially available discharge tubes and atomic spectrometers. The experiments take students through several important topics including energy level diagrams through the Bohr's model of the atom, optical diffractions of various wavelength through a diffraction grating, calibration techniques, and elements of the underlying spectroscopy. This paper provides a recipe for easy integration of atomic spectroscopy into existing courses throughout the curriculum, such as Modern Physics or Quantum Mechanics.

Katelyn Gibbs

McBride

Cyclic eating: The interaction among guilt, stress, and restraint

The purpose of this study was to research the cyclical nature of stress eating. We hoped to ultimately show that guilt over eating causes individuals who are restricted eaters to further restrain their diet, which subsequently makes them more susceptible to overeating under stress. We expected that guilt, and the effort of restraining eating behaviors, would increase the overall cognitive load of the participant. Due to the increased cognitive load we predicted that restricted eaters would be more susceptible to further overeating under stressful conditions. This results in an ongoing cycle of restriction, overeating, guilt, and stress. The guilt-induced group was given a task of eating three doughnuts in the afternoon, and then subjected to the same stress as the non-guilt induced group later that evening. The stressors were either cognitive or social in nature. We then assessed how each, and a combination of both, differently affected this cycle of stress eating. Results showed that the interaction between guilt and stress on eating behavior may be moderated by restraint.

Kol Giessel

Dreiss

Hans Bellmer and the Imagination

Hans Bellmer is an important figure in the history of erotic art. Research regarding his work is often restricted by strict Marxist and Feminist ideologies. Adherence to ideology creates a limited and tedious view of Bellmer's work. I argue for a looser and more holistic interpretation of Bellmer's work by applying Jean Paul Sartre's theory of the analogon. In this way, Bellmer's work becomes a vehicle for an erotic imaginative experience between the viewer and the art work. Additionally, the works of surrealist writer Georges Bataille act as companion guide to Bellmer's work by assisting the viewer to explore more deeply the layers of Bellmer's art.

Erin Gillin

Fuller

Rehabilitation of rare species populations

Cell tissue culture of plant seeds has been used in previous research for horticultural and commercial purposes. This study focuses on successful seed propagation for the restoration of a variety of rare and endangered species. A standard tetrazolium test was used to determine the viability of the seeds. *Pogonia ophioglossoides* and *Tetragonotheca helianthoides* seeds were used for both cell tissue culture and soil planting propagation. In cell tissue culture the seeds were plated aseptically on nutrient full media and stored in sealed sterile bags. Protocorm development was expected, but only one vessel withstood contamination long enough to see some growth before also becoming contaminated. Failure in the aseptic processes caused loss of results for the project. Additionally, no growth was seen in the soil flats. This procedure has been successful in previous research, so I suggest further development of the methods to decrease contamination growth. With attention paid to sterile technique, plantlet development should be attainable in tissue culture for application for large scale production and wild population restoration.

Charles Girard

Moon

"Fuck Yeah" Trans* People: The Transgender Community on Tumblr

For trans* people before the popularization of home internet use in the 1990s, finding a community proved difficult. In the current digital age, trans* people are able to not only find each other but discuss their identities from the comfort of their own homes while remaining anonymous. The popular social networking and microblogging site Tumblr has a large constituency of trans* users who have the ability to interact with each other and understand their own identities not only on a personal level but also in the context of the community as a whole. My research includes a survey of over 300 trans* Tumblr users and critical analysis of historical trans* literature, current trans* discourse, and evaluation of personal blogs of trans* users to better understand how this community interacts through the social networking sphere of Tumblr.

Lauren Gottschlich

Dabb

Case Studies in Authenticity: Northern European Paintings

Authenticity in art has profound impacts upon art historical research and collections worldwide, therefore, the multidisciplinary application of authentication processes is vital to maintaining standards in the professional art world. Although encompassing both provenance research and connoisseurship, the focus of this research is upon the scientific tests available to conservators and the interpretations of the results as per the other two methods of authentication and analysis. Focusing on case studies of Northern European paintings from the Medieval to Baroque periods, the tests relevant to the study of paintings reveal the need for authentication that encompasses both art historical means and science due to the potential for knowledge gained in regards to technique and the presence of misattributions, copies, fakes, and forgeries. As a result of these conservation based studies, it is made evident that within collections and the art market, works of art are of varying levels of authenticity and it is only through a multidisciplinary analysis can accurate assessments of art's authenticity be made so as to avoid the loss of funds, the misinterpretation of art historical record, and the destruction of reputation.

**Anna Halbrooks-Fulks Cooperman Pro-Choice, Pro-Life, Pro-Child? A comparison of Legislator's
commitment to Fetuses with their commitment to Children**

The debate about abortion rights stops once a child is born. This debate focuses on the state's obligation to support and protect the fetus, but excludes a discussion about supporting and protecting children. The landmark Supreme Court case decisions Casey V Planned Parenthood affirmed state's right to erect barriers between a woman and her right to an abortion because of the state's interest in the fetus as a potential citizen. Pro-Life groups have been largely successful in passing policies which makes abortion inaccessible, especially to poor women and women living in rural areas. These policies were put in place because of the state's obligation to protect the fetus. There is little research to compare a state's obligation to the fetus with its obligations to children. What is the state's obligation to the fetus, post-birth? Through an analysis of voting records and interviews with state legislators and advocates, this project compares legislator's support for the pre born with their support of the post-born during the 2011 and 2012 Virginia General Assembly sessions.

**Lorraine Harbison Martinez-Mira How does the European Commission support the promotion
and preservation of Basque, Catalan, and Galician in Spain**

This presentation is going to explore how the European Commission, specifically under the commission of education, culture, multilingualism and youth, supports the promotion and preservation of the three regional languages of Spain which are Basque, Catalan, and Galician. This project will explore this topic by evaluating the policies and programs set forth by the Commission to promote and preserve these regional languages. To evaluate the European Commission's efforts in language promotion and preservation, the project will compare their efforts with that of the United States Governments promotion and preservation of Native American languages.

Ryan Hayes Singh American Foreign Policy: The Key to Nuclear Proliferation?

Increasing tensions in the Middle East surrounding the nuclear ambitions of the Islamic Republic of Iran are creating an intense flurry of political choreography. Yet, if the past is truly the portal to understanding the future, the outcome can easily be predicted. American responses to Iraq, North Korea, India, and Pakistan have left rogue states, undecided on proliferation two options: construct nuclear weapons as fast as possible or fail to do so and risk exposure to the violence of the international system. Thus, with only these options available, rational state actors might deem their best chance of survival—and escape from fear created by the system—is to exist underneath their own nuclear umbrellas. Fear is the motivating factor behind weapons programs within the international state system; it was a prime catalyst behind the United States and Soviet Union nuclear programs during the Cold War, and is still the driving factor today. American foreign policy is showing isolated states the path to nuclear forgiveness—a point where rogue nations are forgiven nuclear transgressions—and removing the historical barrier that has held nuclear proliferation in check for decades.

Ryan Hayes

Farnsworth

Media Coverage of Iraq and Iran: Defining the Warpath

It may be hard to pinpoint the moment a nation chooses to follow a course that culminates in war, but what if media analysis could be used to identify the signs? World events seem to have a measure of predictability, but it may be possible to predict war, one of the most unpredictable events in the international system. Today the media is stirring with rumors of wars, but few have the heated rhetoric surrounding possible future engagements with the Islamic Republic of Iran. This sets the stage to test the theorem with an expectation of two results: either the Obama administration is gearing up for a future conflict with Iran or it is diligently working to avoid being drawn into another Middle East conflict. Using scholarly methods it may be possible to gauge the probability of whether the U.S. is heading to war; consequently, providing a means for identifying states on the warpath. This paper presents analysis of the tone, quantity, and sources surrounding the reporting of each state—contained within the Washington Post across a finite timeframe—suggest that while the world is arguing over what direction to take with Iran, President Obama may be abstaining from the conversation.

Megan Heitman

MacEwen

ESP: The Effect of Confidence on Precognition

Our study will investigate the existence of extrasensory perception. We wish to not only find evidence for the existence of ESP, but also to corroborate the claim that a boost in confidence can enhance a person's ability to perform with ESP. We will present participants with a series of picture detection trials to see if they can accurately detect the emotional valence of the upcoming picture. After they have completed a number of trials we will report a higher than chance accuracy to them and then continue testing performance to see if this manipulated installation of confidence improves their accuracy.

Stephen Hennessey

Snyder

Fantasia for Clarinet and Amplified Guitar

"Fantasia for Clarinet and Amplified Guitar" is a brief through-composed piece without intentional form written for the titular instruments. It was assigned in the Spring of 2012 by Dr. Snyder as an independent composition project, and completed within the hours of 12 and 2am on March 25th, 2012.

Carolyn Higgins

Och

The Competition between Leonardo da Vinci and Michelangelo in the Palazzo della Signoria (1502 to 1506): The Preparatory Drawings

Leonardo da Vinci and Michelangelo Buonarroti were commissioned by the new Republic of Florence to produce a fresco program for the Hall of the Great Council in the Palazzo della Signoria in the beginning of the sixteenth century. The commission created an intense competition between Leonardo and Michelangelo that brought excitement to Florence and Renaissance art. Leonardo was to complete a program memorializing the Battle of Anghiari and Michelangelo was to represent the Battle of Cascina. Sadly, neither of the frescos was completed and only the drawings survive. After only about five years of work in Florence, Leonardo returned to Milan and Michelangelo was at work in Rome. Even though the project was never completed, the preparatory drawings and the existing cartoons can be considered the turning point for Renaissance art. Artists and art-lovers flocked to the city, even after the artists left, to see these drawings and learn from the revolutionary techniques and beauty. My study examines the competition, through the preparatory drawings, as the shift towards the High Renaissance and the change of art in the sixteenth century.

**John Ackley, Tyler Hoehn, Kasi
Hunnicut, & Amanda Manno**

Steckler

Emerging Adulthood: A Three Generational Study

Emerging adulthood is a stage occurring between the ages of 18-25. This stage has five characteristics: instability, feeling in-between, endless possibilities, self-focused, and identity explorations. This study examined the parenting styles of emerging adults' parents and grandparents, and how emerging adults and their parents say they were raised. Our hypothesis is that a change in parenting styles between the grandparents of current emerging adults and the parents of these emerging adults contributed to the formation of the stage of emerging adulthood. Results indicated that there were significant differences between how emerging adults were raised and how their parents were raised across all five dimensions. Results also indicated that there were significant differences between parents' parenting styles and grandparents' parenting styles across all dimensions but self-focused. Results suggested that parents raised their emerging adults differently than how parents themselves were raised.

Jessica Jefferson

Barr

**The Women's Movement in Latin America: From
Suffrage to the Modern Era**

Throughout Latin American history, women have been portrayed as submissive, inactive participants in a male dominated world. However, in the last century, women have been increasingly taking hold of their lives and their futures through increasing involvement in women's social movements ranging from supporting female suffrage to pushing for a new political system to advocating against human rights abuses. This increase in women's involvement in activism outside of the home has become a dynamic and innovative process. These women's movements throughout Latin America are most active during periods of economic and financial hardship when the state is inaccessible and/or unresponsive and capitalizes on shared identities and symbols; but, the movement loses support and relevance over time and with institutionalization. This study will analyze the cases of Chile, Argentina and Colombia from the early twentieth century to the modern era in order to illustrate that hardships and the inaccessibility of the state lead women to mobilize into movements that can become extremely influential, but often fade out over time and as they are integrated into male-dominated institutions. Despite their transitory nature, these women's movements leave permanent and prominent marks on the cultural norms and collective histories of their societies.

Michael Kessler Gable

Authenticity of Celticity

I'm Celtic Irish. I've been one all my life and I've come to that decision myself, or have I? Ethnic/Cultural Identity has always been rooted in the idea of being (in either an individual or community oriented way). How do I see myself? How do we see ourselves? And why do we see ourselves that way? Is it the urge to be connected with those around you, the need to feel connected to one's past, or the outside influence of those with a silver tongue that shapes the way people identify themselves. Looking specifically at modern day Ireland through modern Irish newspapers, television broadcasts, blogs, and other related media and their connections with research done by contemporary Anthropologists in the fields of National and Social Identity and Celtic Studies from around the Global Landscape, I'll try to show the connection between politics, the idea of identity and whether or not it plays a strong role in the creation of personal and/or social identity.

Drema Khraibani Szulczewski

Examination of the Potential for Wind Energy in the Middle East

Wind is an alternative energy resource to fossil fuels. In addition it acts as a solution for the increasing demand for electricity resulting from an increase in population and an increase in electrification in developing countries. Wind energy could help with growing problems of poverty and water shortages in many regions. The Middle East has 32% land surface with sufficient wind conditions for efficient wind energy production (Johansson et al., 2004). The process of wind energy implementation is to first determine if this energy source is geographically and economically viable in a region. Then, examine the location, energy infrastructure, and wind measurements of potential sites. Next steps include economical, ecological, environmental, and wind turbine analyses of prospective locations. Obtaining community approval and governmental endorsement are other stages needed in the implementation of wind turbines. A case study of interest examines wind energy in the country of Lebanon. Lebanon has fulfilled a few steps in a wind feasibility study already. According to one expert, there is a set target of 60-100 MW wind energy by 2015 (Shehadeh, 2012). Currently, the Lebanese government is considering potential locations based on recently obtained wind data from CEDRO, a leading contractor of alternative energy in Lebanon.

Elanor Kindred Kennedy

The Dynamic Muse: The Literary and Spiritual Personifications of Creativity

This study traces the origins of Muse figures from their beginnings in Ancient Greece and also examines the Greek concept of daimons, comparing the two figures and arguing that they may be regarded as the same power in different manifestations. These figures are found again in adapted forms with poets of the Italian Trecento, and are considered in a more Christianized light in the works of Dante, Cavalcanti, and others. Even more modern psychology has attempted to explain this creative power, most notably the Jungian complex of Anima/Animus. The human mind experiences something sacred during acts of pure creativity, and throughout human history, people have attempted to explain this phenomenon in different ways, ranging from a supernatural explanation of gods and goddess, to a scientific explanation that seats the creative source at the heart of the human psyche itself. In reality, this creative power is the same regardless of what theory one chooses to apply to it, and it is perhaps by examining the presence of this force over the course of literary, spiritual, and even psychological history that it is possible to catch a glimpse of the truth that stands behind all great creative works and lives.

Brittany Kyser

Aminrazavi

Mahmoud Ahmadinejad: The President Elect of the Hidden Imam

I am presenting research from my senior Religion thesis, titled, "Mahmoud Ahmadinejad: The President Elect of the Hidden Imam." In my thesis, I argue that President Ahmadinejad believes that he is the current President of the Islamic Republic of Iran due to the divine intervention of the Hidden Imam, a messiah figure in Shiite Islam. As a result of this belief, Ahmadinejad works to incorporate the Hidden Imam into his political career. He does this by appointing hard-line messianic believers into his government and by donating money to Shiite pilgrimage sites, such as the Jamkaran Mosque. In my research, I discuss the importance of the Hidden Imam in Shiite Islam and the origins of Ahmadinejad's ideas concerning the Hidden Imam. Additionally, I analyze Ahmadinejad's religious and political background, including his time as the Mayor of Tehran. I also examine Ahmadinejad's rhetoric and actions as president that have invoked the Hidden Imam, including his 2005 speech to the United Nations General Assembly. I conclude my research by discussing Ahmadinejad's goal in calling upon the Hidden Imam and how this affects Ahmadinejad's politics.

Lauren Kyser

Dabb

Assyrian Palace Sculptures From Nimrud

This paper discusses the alabaster relief sculptures found at Nimrud, located in modern-day, northern Iraq, by Sir Austen Henry Layard during his excavations from 1845 to 1847. These relief sculptures, which date to the reign of the first Neo Assyrian King, Ashurnasirpal II (883-859 B.C.E), lined the walls of his palace throne room and depict religious guardian figures and narrative scenes with the king himself participating in lion and bull hunts, battles, city sieges, and triumphal processions. This study focuses on the narrative scenes of the south wall of the throne room. Specifically, this paper addresses the formal qualities and the iconography of each individual relief scene and the entire group of scenes in order to prove that they visually represent Ashurnasirpal II's power and authority by presenting him as the nucleus of Assyrian imperial ideology.

Julia Lanzarone

Rotter

The French Obsession with Ernst Jünger

The French obsession with German author Ernst Jünger is puzzling. Jünger was a German soldier and author who fought against the French in both World War I and World War II and was part of the occupying forces in Paris from 1941-1944. He is not widely read or highly regarded in his native Germany, yet in the land of his wartime enemy he is considered to be the greatest German author. This obsession is not easy to understand, but it seems to stem from Jünger's own love and admiration for French culture, which he protected as best he could during the German occupation of France. As a teenager, he joined the French Foreign Legion and during his occupation of Paris, he frequented salons and grew to be the friend of many great French authors and artists. He is regarded in France as an "Anti-Nazi" because he criticized the Nazi regime in his novella, *On the Marble Cliffs*, which was published in 1939 under Nazi rule. His works themselves reveal a detachment from the horrors of war and a certain existentialist crisis which appeal to the French reader.

Asma Latif

Loesser

**The Effect of Exercise and Estrogen on Atherosclerosis-
Prone Mice Hearts**

Dylan Lederle-Ensign Whalen

Reading Code

In Reading Code, I analyze the source code of a literary video game, utilizing techniques from the emerging practice of Critical Code Studies. I research prior literature on Code Studies, establishing its validity as a method of criticism for video game studies. I investigate the way the code of a game influences the other layers of the game. Finally, I attempt my own code study of J. Rohrer's Gravitation, situating my findings within prior studies of the game that had addressed its other layers.

Kristen Lewis

Baker

**The effect of the herbicide atrazine on gene regulation in
the zebrafish, *Danio rerio*: a microarray analysis.**

Atrazine is an endocrine disruptor that is one of the most common pollutants in American groundwater today. It has been the most widely used conventional pesticide in the United States for many years, and more than 74 million pounds of the chemical are applied to 64 million acres in the U.S. every year (Kiely et al. 2004; Langerveld et al. 2009). Previous research has shown that atrazine has negative effects on growth and development, metabolism, immune function and masculine genes. (Larson et al. 1998; Hayes 2002; Rooney et al. 2004 Nieves-Puigdoller et al. 2007; Rowe et al. 2008). Using microarray analysis, we examined the effects of the chemical atrazine on gene expression in the brain of the zebrafish. We identified six genes that were significantly downregulated in atrazine-treated fish compared to control fish (fold change $*0.77$ and p value $*0.1$). These downregulated genes play a role in cell growth and development and immune function.

Kristen Lewis

Cooperman

Science versus Politics: the Case of HPV Vaccine Mandates

The Human Papillomavirus (HPV) is a sexually transmitted infection (STI) that is endemic in the United States and has a proven link to a variety of cancers, including nearly all cervical cancers. The first HPV vaccine was introduced in the United States in 2006 after it was proven to prevent cancers caused by HPV and proven safe for both girls and boys. The vaccine is widely viewed as safe and efficacious in the medical and scientific community. A vaccine that prevents cancer and saves lives sounds like a no brainer, so why is the issue mired in controversy? The ideal age for HPV vaccination (11-12 years of age) is before onset of sexual activity, thus causing a moral opposition from those who endorse abstinence until marriage. State regulation of the HPV vaccine is an issue that lies at the intersection of women's reproductive health, state regulation of public health, and public reservations about vaccines. I plan to focus on Virginia's HPV vaccination policy in comparison to the nation, the Southeast and federal level agencies. There is a need for focused research on Virginia's HPV vaccination requirement, because it remains the only successful state HPV vaccine mandate.

**Carly Maalouf & Stull
Bess Ten Eyck**

**Decoding the Idea—Notions of Self, Community, and
Transformation in Performance**

Performance emanates from many sources and reflects the influences of creator, environment, and culture. As an art that is driven by institutional structures, theatre is not only a personal pursuit but also an agent of community change. By talking with artists and experiencing their work, theatre emerges as a performative act that is transformative in result. In seeking a deeper understanding of Kenneth Turan's monumental biography (co-written with its subject), *Free for All—Joe Papp, The Public, and the Greatest Theater Story Ever Told*, we explored the relationship between the idea that is at the genesis of theatrical creation and its ultimate connection to theatre artists, theatre audiences, and the discipline.

Marianne Mannix Szulczewski

**Continuing Acid Mine Drainage Impacts on the Environmental
Health of the Soils, Streams, and Vegetation in a Virginia
Ecosystem**

Anthropogenic activity can adversely affect an environment even after the harmful activity has ceased. For example, the 8-km long Contrary Creek located in Louisa County, Virginia, is the site of a pyrite mine that closed almost a century ago and is still exhibiting signs of AMD impacts as a result of the mining operations. After several years of study, it is clear that AMD continues to affect the soil, water, and the ecosystem as a whole. Continuing study shows very little improvement in the health of Contrary Creek and the surrounding area. Despite the pyrite mines being closed since the 1920's, pH values are too low and trace metal concentrations are above acceptable limits for a healthy ecosystem. All of the sampling sites extend along Contrary Creek as well as an abandoned mine shaft about 50-m away from the creek. The sampling sites were located upstream and downstream of the mine to compare the severity of AMD effects on the surrounding ecosystems. Streamwater, soil, and sediment samples were analyzed for trace metals using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES). Plant digestion and analysis was also performed, using similar methodology, in order to observe the amount of metals taken up by the plants in the area. A sequential extraction was also performed on four soil samples and two sediment samples. This experiment separates different fractions of metals to give information on how the metals are distributed within the soil and sediment. The pH levels were determined in addition to the organic matter content that was measured through a loss on ignition technique. Results reveal very low pH values and high metal concentrations in most samples. These low pH levels and high metal concentrations create an inhospitable environment that limits flora and fauna in both diversity and abundance. Through our research, we have determined that AMD effects on the ecosystem show little improvement even after mining operation.

Shirley Martey

Larus

**The United States and South Korea: Danger in Diverging
Foreign Policy towards North Korea**

In their mutual goal to stop North Korea's nuclear weapons program, there has been a continued destructive pattern in diverging foreign policies between the United States and South Korean administrations. This paper argues that diverging foreign policies across a span of administrations between South Korea and the United States contributes to the continued failed progression in containment of North Korea's uranium enrichment nuclear weapons program. Should there be more consistency in converging foreign policy towards North Korea, the United States and South Korea stand a better chance at progression with North Korea rather than to continue on the destructive path that diverging policies have produced thus far. By analyzing past and current administrations in the United States and South Korea, this paper proves that consistency in converging foreign policy towards North Korea stands a better chance at replacing the destructive results that both countries have produced thus far. This can be done if future administrations model and improve upon the progressive convergence in foreign policy that is being produced from the current Obama and Lee administrations. This joint effort to apply a common foreign policy to North Korea could work to alleviate tensions and begin an implementation of effective diplomacy.

Michelle Martz

Rigelhaupt

**The Debate Over Cultural Representation: The Pittsburgh
Courier and the NAACP's Protest of the Amos 'n' Andy Show**

During the antebellum period blackface minstrelsy dominated American entertainment. The racist stereotypes produced through white men blacking their faces and performing as African Americans developed a complex cultural system that legitimized racial order and African Americans subordination. These racist portrayals continued into the twentieth century with Hollywood films, radio, and television. One of the most popular radio and television show, The Amos 'n' Andy Show, created a new comedy of black characters rooted in minstrel tradition. The show, created by two white men, scored high ratings and praise. However, in two different protests, The Pittsburgh Courier and The National Association of the Advancement of Colored People (NAACP) began nationwide campaigns to cancel the show over the negative cultural representations. These two African American groups became activist groups that argued the cultural representation of African Americans in the media hinders the fight for civil rights and equality. The objective of this study is to demonstrate the importance of cultural representation within the historiography of the Civil Rights Movement.

**Ali McClellan &
Kiersten Anderson**

Parker

**“Um...I don't really ['wɪlwi] want to do that one because...
um...': Fillers and Phonetic Variation in the Speech of an 8-year
old child.”**

This naturalistic, observational study focused on the spoken language production of an 8-year-old child. The study entailed collecting oral data over multiple sessions to identify and then analyze a subset of the data for consistently prominent linguistic patterns. The researchers chose to focus specifically on the child's articulation of the glides (/l/ and /r/) and the distribution of pause fillers in the child's production of a personal oral narrative. Results of the study supported preexisting literature on child language and demonstrated the differences between syntactic planning in children and adults.

Paige McKinsey

Vasey

Women In Afghanistan and Their Need for an Education

In my presentation I will discuss why women in Afghanistan need access to an education. First I discuss exactly what the current situation is for Afghan girls and women. Then I will describe how this situation came about. Next, I will talk about what organizations are doing in other countries regarding this issue. Finally, I explain the benefits of educating girls and how Afghanistan could reap these benefits if it offered girls equal access to an education.

James Meissner

Mackintosh

Program Evaluation: Horticultural Therapy

This is a pilot program evaluation of Prince William County's Horticultural Therapy Program. Clients participate in activities centered within a framework of psychosocial rehabilitation and the recovery model. Horticulture is a primary focus of daily therapy activities, which can include gardening, nature walks, crafts, classes, and trips. The program has 23 clients; 16 attend on a regular basis. Diagnoses include cognitive impairments and mental illnesses. Demographically, the client population had a wide range of ages and a variety of racial/ ethnic backgrounds. The evaluation team interviewed staff and clients. The team administered the Quality of Life Index (QoL) and Recovery Oriented Systems Indicator (ROSI) to each client. This data established preliminary comparison data for potential longitudinal comparisons and also provided a general overview of program satisfaction. Finally, the evaluation team attended a variety of program days and events to collect qualitative naturalistic observations. Preliminary results of this evaluation indicate overall client satisfaction. Recommendations for improvement address deficiencies noted in interviews and observations—specifically, the need for more staff support. Future studies could compare longitudinal QoL and ROSI scores to assess whether client quality of life and program satisfaction increases, decreases, or remains stable with increased time in the program.

Kelsey Meyer

O'Dell

Effect of Cell Phone Radiation on Gene Expression in Glioblastoma Cells

Human glioblastoma multiforme cells were used to determine the effects of cell phone radiation on gene expression. The cells were exposed directly to cell phone radiation for twenty five minutes before the RNA was extracted at predetermined intervals. The RNA was tested for concentration and integrity. The samples were then analyzed for gene expression using specialized PCR plates; which measured quantities of mRNA related to oncogenes and tumor suppressor genes.

Larry Michael

Rizzo

The Route 29 Bypass Study in Charlottesville, Virginia using Geographic Information Systems Modeling

The focus of this study is to analyze the proposed Route 29 freeway bypass project located in Charlottesville, Virginia and to develop suggested bypass corridors. The Route 29 Bypass as proposed in 2002 for the study corridor starting at the University of Virginia and ending north of the Rivanna River Reservoir, does not appear to be located to provide the least impact on existing schools, and residential areas, additionally the access points may not be located to amply relieve the existing Seminole Trail (Route 29) of significant traffic congestion.

**Haley Miles-McLean, Schiffrin & Liss
Kathy Geary, Taryn
Tashner, & Kathryn
Rizzo**

**Hovering or Helping?: The Effects of Helicopter Parenting
and Autonomy Support on College Students**

We examined whether helicopter and intensive parenting lead to positive or negative outcomes for parents and children. This study researched both college students' outcomes based on how they were parented and their parents' perceptions of how they parented their children. The current literature on parenting suggests that parents' involvement in their child's life can lead to positive or negative child outcomes. Helicopter parenting is a term used to describe when parents' involvement in their child's life becomes too controlling, and popular press books suggest that helicopter parenting leads to negative child outcomes. Despite the popular press coverage of this issue, little research has been done to explore helicopter parenting and its effects on the child of the helicopter parent(s). The goal of this study was to focus on two dimensions of parental involvement: parental control and autonomy support. We will describe the relationship between parental involvement and college student outcomes such as depression, anxiety, self-efficacy, life satisfaction, grit (e.g., the ability to follow through on projects), narcissism, and entitlement.

Paige Naylor

Snyder

Homescape

In the creation of this piece, I was inspired by the sounds of home. I extracted many sounds that can be heard in my everyday home-life, including sounds like the shutting of a screen door, a cats' meow, the grinding of coffee beans. I took these sounds and manipulated them to create a music-concrete environment that personifies the joys of spending time at home. The compilation of these sounds make up the "homescape" of where I grew up.

Scott Neill

James

Identity Politics of the Blues

The Blues has become a universal art form deployed in various contexts, including the post-slavery United States (where it was innovated), amongst post-war suburban youth, and post-communist Russia. My presentation attempts to describe the anthropological circumstances for how the identities of each of these groups was politicized following a sudden loss of institutional identity in general.

Catherine O'Doherty Esunge

Stable Distribution and the Real Estate Market

We explore stable distributions, noting their relation to Cauchy and normal distributions. We examine how stable distributions can be used to model local real estate markets within Virginia.

Alexandra Plotnikov Gable Music, the Underground, and the Russian Soul: Musical Protest in the Soviet Era

Russians have a natural inclination to celebrate “fighting against the System,” an action which directly ties into the romantic nationalistic image of the “Russian Soul.” During the Soviet Era, when oppression and censorship limited personal expression, many musical artists turned to producing their music through underground networks. Music, which itself can be another form of the “Russian Soul,” was used subversively, either blatantly humiliating the Soviet regime, or hiding in lyrical double meanings. Stylistically, much of the music was very folkish, tying into a Russian ethno-nationalistic identity, helping to create cultural solidarity against a hegemony that wished to erase “primitive” folkways and promote “modernity.” Musicians who used such forms for protest became immensely popular among Soviet youth, having a lasting political, artistic, and social impact.

Rebecca Presor Lee Black-Scholes Option Pricing Model: Analysis, Approximations, and Applications

In this paper, we use both numerical and analytical models to analyze the fairness of an option price. We first derive the Black-Scholes equation, a partial differential equation, which shows the current fair price of a particular European option. Sometimes a fair price cannot be found by using the analytical approach and numerical methods must be used. Therefore, we use finite difference equations and derive three numerical methods, Crank-Nicolson, explicit, and implicit, which gives us the finite difference approximations needed to price the options. We develop code for our analytical and numerical methods and compare the outputs. From this we discern how precise our numerical solutions are relative to the analytical solution. We also apply our code to real-life European options on the market, specifically the S&P 500. We look at the numerical outputs and determine whether or not to buy a specific option and see if these investments are profitable at maturity.

Mina Recta Szulczewski Continuing Acid Mine Drainage Impacts on the Environmental Health of the Soils, Streams, and Vegetation in a Virginia Ecosystem

Anthropogenic activity can adversely affect an environment even after the harmful activity has ceased. For example, the 8-km long Contrary Creek located in Louisa County, Virginia, is the site of a pyrite mine that closed almost a century ago and is still exhibiting signs of AMD impacts as a result of the mining operations. After several years of study, it is clear that AMD continues to affect the soil, water, and the ecosystem as a whole. Continuing study shows very little improvement in the health of Contrary Creek and the surrounding area. Despite the pyrite mines being closed since the 1920's, pH values are too low and trace metal concentrations are above acceptable limits for a healthy ecosystem. All of the sampling sites extend along Contrary Creek as well as an abandoned mine shaft about 50-m away from the creek. The sampling sites were located upstream and downstream of the mine to compare the severity of AMD effects on the surrounding ecosystems. Streamwater, soil, and sediment samples were analyzed for trace metals using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES). Plant digestion and analysis was also performed, using similar methodology, in order to observe the amount of metals taken up by the plants in the area. A sequential extraction was also performed on four soil samples and two sediment samples. This experiment separates different fractions of metals to give information on how the metals are distributed within the soil and sediment. The pH levels were determined in addition to the organic matter content that was measured through a loss on ignition technique. Results reveal

very low pH values and high metal concentrations in most samples. These low pH levels and high metal concentrations create an inhospitable environment that limits flora and fauna in both diversity and abundance. Through our research, we have determined that AMD effects on the ecosystem show little improvement even after mining operations have stopped.

Kathryn Rizzo

Schiffrin & Liss

Intensive Mothering Outcomes for Women

The ideology of intensive mothering has emerged as the dominant discourse of parenting (Arendell, 2000). Although there are many qualitative studies on the consequences of endorsing intensive mothering beliefs, there have not yet been any quantitative studies. Mothers completed a survey about intensive mothering beliefs (e.g., mothers are the most essential parent, parents should feel completely fulfilled by their children, and a parent should provide consistent intellectual stimulation for their child), satisfaction with life, stress, depression, and perceived social support. Intensive mothering beliefs correlated with many negative outcomes. Controlling for perceived family support, essentialism, or the belief that mothers are inherently the most capable parents, was related to lower life satisfaction, and believing that mothering is challenging was related to greater depression and stress.

Katie Rosinski

Garmon

Housed/934B

Built of construction materials, my work carries with it ties to dwelling. Each piece is a document, the source material degrading from concrete blueprints to recollections and interpretations. Presence within personal spaces is carefully mapped, tracking specific interactions within the space and the relationships between architecture and the self. I identify with and am fundamentally linked to the places I live and have lived.

Maureen Rutter

Nguyen

A study of acousto-optical modulation

Acousto Optical Modulation (AOM) experimental setup was employed to shift the frequency of a single frequency laser and quickly turn on and off its intensity. Both of these goals are important tools in fields such as laser spectroscopy in which AOMs are used to vary the frequency of the laser light, telecommunications where AOMs can be employed to control signal modulations, Q-switching and cavity dumping in solid state studies, and in controlling the power of laser beams in laser printers. In our current experimental setup, up to 80 percent of the laser beam was shifted into the first order. The laser beam was turned on and off in order of 100ns. We will also report a modification of our current experimental setup to introduce two frequencies into one single AOM. The potential uses of an AOM driven by two different frequencies will be discussed.

Kelly Scott

Mellinger

Anti-Blocking Sets

Anti-blocking sets are found in finite projective planes and rely on the property that they are not a subset of a blocking set. During this presentation we will explore properties of finite projective planes in order to introduce the notion of blocking sets and then anti-blocking sets. We will work through examples of such sets and give some fundamental results. Because the question of bounds is quickly raised through study of anti-blocking sets we will look at properties of sets in projective planes in order to develop minimal and maximal anti-blocking sets. We will quickly find that an anti-blocking set must be a subset of the complement of a line and in the case that more than one line is not blocked we can provide a complete characterization. Moreover, we can establish a connection between anti-blocking sets and the Besikovitch sets in affine spaces, a topic which has been studied recently.

Amy Smetana

Kim

To Fear or to Trust? The Relationship Between the Latino Community and the Police

Over the last few years, anti-immigrant sentiment has been on the rise nationally and local law enforcement officials have played an increasingly active role in immigration enforcement with programs such as Secure Communities. It is argued that these trends have increased tension between the police and Latino communities. Since Fredericksburg participates in Secure Communities and its Hispanic population has increased rapidly in the last 10 years, I decided to study the relationship between the local police and the Latino community. In this study, I analyze the perceptions and the experiences that Latino immigrants, police, police interns, and community service providers have related to this issue. I argue that the relationship between the police and the Latino community is a nuanced process. My findings suggest that Latinos tend to have low initial trust in the police, but this can be changed through positive interaction and rapport building. However, in absence of positive experiences and with stories of discrimination and deportation, trust stays low or can be broken. Factors like gender, language, and media all play a role in this relationship, but past experience appears to be the most crucial. More research can and should be done to understand this relationship.

Amy Smetana

Castillo

When Dialogue Fails: Peruvian Social Movements and Extractive Industries

Within the last decade, social movements confronting extractive industries have erupted throughout Peru, from coastal Arequipa to the Amazonian rainforest. In this study, I analyze Arequipenian defensive association leaders' perceptions of the indigenous Amazonian movement challenging extractive industries. Furthermore, I examine the relationship between these leaders and the Amazonian movement to see if a national movement could arise to confront extractive industries in the future. While in Peru during 2011, I interviewed six leaders from the Department of Arequipa who have supported or directed movements challenging extractive industries. I also collected data from materials made by the leaders' organizations, books, and media archives. I argue that Arequipenian leaders perceive the Amazonian movement to be very similar to their own movements. For them, these just social movements are caused by the unjust political and economic climate supported by the Peruvian government. Also, I found that while a national movement that would unite Arequipa with the Amazon is desirable and possible in the future, this union would be difficult to create, for reasons such as identity differences, physical distance, and a lack of leadership. As long as the status quo continues, Peruvians will continue to claim their rights through social movements when extractive industries threaten their communities.

Mallory Somerset Fallon

Sounds of Old English: A Technological Approach to Linguistic Scholarship

Old English can be a tricky language for students to tackle, especially since no native speakers exist. There are countless resources online for scholars and casual learners alike, but not all of them are reliable or even accurate. My Independent Study consists of a website entitled "Sounds of Old English," a comprehensive guide for beginning students of Old English. I have included both beginning and advanced pronunciation guides, as well as reviews of current websites, recordings, and videos on YouTube in order to steer novice speakers of "Eald Englisc" in the right direction. My hope is that the longevity of the site will continue past my graduation in May, and become a lasting resource for the Linguistics Department.

**Molly Sullivan, Rettinger
Katy Taylor, &
Ruby Abate**

How the Dialect of Speaker Influences the Level of Guilt/Responsibility Attributed to That Speaker

Individuals make various attributions about speakers based exclusively on the dialect found within the speech. The present study is aimed at comparing how guilt and responsibility are attributed to speakers of Standard English and African American Vernacular (AAV) after listening to a speaker's witness testimony depicting a murder of which the speaker has been accused. Taking into account the associations of Standard English with specific socioeconomic statuses and education levels, AAV with group membership of the African American community, as well as disproportionate incarceration rates between African Americans and whites in the United States, the current study seeks to identify a higher-order relationship between culturally-bound dialects and personal attributions formed within the mind of the listener. It is possible that the disproportional incarceration rates are in part due to nonconscious biases that listeners hold towards AAV speech, as a byproduct of biases held against the cultural groups most often associated with it. This possibility holds grave consequences in the judicial system and should therefore be examined under scientific laboratory settings.

Henry Talley Hayob Clay Mineralogy of Estuarine Cores Collected from the Tidal Reaches of the Rappahannock River, Tributary to the Chesapeake Bay

Recent studies by others at UMW of the physical and biological characteristics of young (last 100 years) cores collected from the tidal reaches of the Rappahannock River indicate a late 20th century freshening and deterioration of the salinity gradient in the Northern Neck region of Virginia. My main objective in this study was to evaluate whether the clay mineralogy was affected by this freshening in sediment cores collected at the fresh-salt water transition zone. Powder X-ray diffraction analysis of clay samples indicates the presence of the following clay minerals: kaolinite, illite, chlorite and expandable smectites, which are typical clays found in river estuarine systems of the Mid-Atlantic region. My data, although preliminary, indicate a greater abundance of smectite clays in the upstream, fresher waters of the salinity transition zone. This result differs from observations made by Feuillet and Fleischer (1980) in the James River, where greater amounts of smectite clays were found downstream. I attribute greater smectite found upstream in the Rappahannock to the liberation of this clay from Coastal Plain sediments (e.g., Calvert Formation) by means of increased agricultural activity and/or deforestation throughout the past century.

**Heather Thompson,
Rachel Icard, Caitlin
Murphy, Michelle Martz,
& Kelsey Matthews**

McClurken

**Digital History: The James Monroe Museum Political
Cartoon Archive**

For the past semester, this digital history group has been focusing on gathering, researching, and publishing political cartoons ranging from the 1840s to the 1960s. Currently housed at the James Monroe Museum in downtown Fredericksburg, these cartoons range in topic from natural disasters to World Wars and other miscellaneous topics. The focus of our creative research project has been to not only make this unique collection available to the World Wide Web, but to also educate those who are unfamiliar, or doing research on, the James Monroe Museum and political cartoons. This presentation will be given by Andrew Becken, Rachel Luehrs, Heather Thompson, and Rachel Icard.

Ryan Vaughn

Helmstutler

On the Contractability of Finite coH-Spaces

Although topology has been studied for roughly 100 years, finite topological spaces have always been regarded as somewhat exotic. After all, topology was generalized through the spatial properties of Euclidean space, which is uncountably infinite in even one dimension. For this reason, finite spaces were largely not considered for the first half of topology's chronological development. However, in 1966, R.E. Stong and Michael McCord independently published seminal papers on the topology of finite spaces. McCord established the validity of studying such structures by proving that they had highly non-trivial homotopy groups, while Stong developed tools for their analysis and classified finite Hopf spaces, proving that they must be trivial. Although their collective treatment of the subject was very thorough, it was not comprehensive. In this project, we extend the results of Stong and prove that finite Co-Hopf spaces are also trivial. This essentially means that homotopy groups cannot be constructed by considering maps from a finite space. This result comes as somewhat of a surprise, given that many spaces used heavily in homotopy theory (e.g., n -dimensional spheres) have finite analogues with exactly the same homotopy groups. In addition, our work shows that these finite spaces cannot be used to aid in the computation of homotopy groups.

Kelsey Voss

O'Dell

**Identifying Target Genes in Estrogen Receptor Pathways Resulting
from BPA Exposure in Breast Cancer**

Bisphenol A, also known as BPA, has a large presence in our daily lives. BPA can leach into food from the protective internal epoxy resin coatings of canned foods and from consumer products such as polycarbonate tableware, food storage containers, water bottles, and baby bottles. This man-made chemical enters the body by ingestion or absorption and mimics the actions of estrogen. There are two main types of estrogen receptors found in the body, estrogen receptor α (ER α) and estrogen receptor β (ER β). These receptors act as ligand-activated transcription factors which mediate the biological effects of estrogens in the body. An additional pathway by which BPA can act is via an estrogen related receptor (ERR), or by activating androgen receptors. Although BPA has been shown to have a high binding affinity to the ERR γ , the actual molecular pathway of the ERR γ remains unclear. Previous work in this lab suggests BPA may induce breast carcinoma by estrogen mimicry through the ERR γ . The purpose of this experiment is to examine whether BPA is mediating changes in gene activity by acting through ERR γ , and to infer a possible signaling cascade pathway resulting from BPA interaction with various receptors. This is done by exposing breast mammary epithelial cells to BPA while selectively blocking each type of estrogen receptor (to isolate the receptor pathway in question), and then running a real-time PCR array which analyzes the presence of cancerous gene products.

Amy Walker,

Nissim-Sabat

Assessing Empathic Accuracy in College Students

Sarah McDermott,

& Hillary Lions

The purpose of this study was to investigate empathic accuracy in stressed, relaxed, and control conditions. Five confederate targets were filmed discussing positive and negative emotional life events. They then viewed these clips and rated their feelings at the time of the recording. The targets rated their feelings on a scale of 1 to 5, 1 being extremely negative and 5 being extremely positive. Seventy-five participants watched the 8 video clips created by the targets. The participants rated the targets' emotional states with the scale used by the targets. We hypothesized that participants in the stressed condition would empathize less accurately than those in the other conditions. The preliminary results suggest that deviation scores for participants in the stressed condition (mean = .765) were significantly higher than those in the relaxed condition (mean = .683) as well as those in the control condition (mean = .686). The greater deviation supports the hypothesis that participants in the stressed condition empathized less accurately with targets.

Margaret Walker Griffith Effects of Dam Removal and Planted Species on Invasive Riparian Vegetation

Dams only have a finite lifetime, and many must eventually be removed. Removal can change riparian areas in many ways, for example, pond levels can recede and soil can be uncovered. Two dams were removed in New Kent County, Virginia on a tributary of the Pamunkey River. After dam removal, species were planted in the area to help counteract the increase of growth of invasive species. Invasive species can thrive in this area because of the amount of nutrient rich soil which has been uncovered. Percent cover data of species present was collected before and after dam removal. The Data were collected along 6 transects throughout the pond area. On the transects every 5 meters, 1 m² quadrats were used to sample the vegetation. Several known invasive species were found in the area prior to dam removal. *Microstegium vimineum* and *Murdannia keisak* are the two known invasive species in the area. Prior to dam removal, *Microstegium* had an average percent cover of 17.2%, and *Murdannia* had an average percent cover of 11.5%. After dam removal, the average percent cover of *Microstegium* was 7.9%, and *Murdannia* had an average of 6.2%. Furthermore, after dam removal the average percent cover of planted species was 3.8%. The percent cover of invasive species has decreased since dam removal. However, the invasive species have a higher average percent cover than the planted species.

Rebecca Welker Rotter "The Saviors of Missouri": St. Louis' German Community During the Civil War

The German Community in St. Louis had always been strongly Republican and in favor of abolition and so it was only natural that, when their country went to war, the German community would organize in its defense. From the earliest days of secession, it was the German Americans of St. Louis who raised troops to support the Union cause and who were willing to take up arms to keep Missouri in the Union. These men would support the cause not only in their home city, but also by fighting on every front of the Civil War. Their story is remarkable not only for the dedication shown by St. Louis's Germans, but also because these men were immigrants who showed remarkable American patriotism. This presentation explores the ways in which the German Americans of St. Louis negotiated their dual identity as immigrants and as Americans, and tells the story of how they became the "Saviors of Missouri".

**Kara Westerfield Tibert Schlerochronology and Stable Isotope Values from Crassostrea Virginia
from Late 18th Century Middens at Stratford Hall, Virginia**

The Colonial Plantation of Stratford Hall on the Northern Neck of Virginia, owned by Revolutionary War hero Henry Lee (1756 - 1818), and birthplace of Robert E. Lee, included a number of slave quarters that generated middens. Six oysters collected from the Stratford Hall middens were analyzed for growth histories and stable isotope values. Scanning Electron Microscopic (SEM) imaging of the growth bands along an axial transect across the internal umbo divulged a quadripartite seasonal record of growth to include interpreted intervals that corresponds to winter (January-March), spring (April-June), late summer (July-September), and fall (October-January). A computer-controlled robotic micromill was employed to isolate discrete aliquots of calcite powder for isotopic analysis at the University of Saskatchewan. The six specimens of *Crassostrea virginica* ranged in age from 5-8 years with an average of age of 6.5 years. Growth rates averaging ~14.2 mm per year generally declined throughout the life history of the oysters. In the context of seasonal variability, maximum growth rates occurred during late summer (July-September) with a minor exception for two of the specimens. $\delta^{18}\text{O}$ values display a reasonable correspondence to variability with changes in growth patterns. Values ranged from -7.4 to -0.9 $\delta^{18}\text{O}\text{‰ VPDB}$ with an average of -5.1 $\delta^{18}\text{O}\text{‰ VPDB}$. The greatest variability

Cara Wimberley Vasey Civil Rights in the Queer Community

A human rights struggle prominent today is that of the queer community. Individuals who do not identify as heterosexual or whose gender identities do not match those that were assigned to them at birth face discrimination based on their identities. Cultural norms are not the only barrier preventing equality for individuals of sexual and gender minorities; legislation, and in many cases a lack of legislation, hinders this process as well. My research focuses primarily in the United States and gives an overview of problems faced by the queer community. My paper makes parallels between queer rights movements and the Civil Rights Movement as I discuss the role legislation plays in queer rights.

Frank Womble Wessels Magnetic filtration of biological solutes using a microfluidic device

We design an experiment to test the performance of magnetic filtration of biological solutes using a microfluidic device. This would be a very simple model of a device component potentially useful in blood filtration and similar applications. The device consists of an inlet and mixing chamber, a filtration chamber, and a sensing and exit chamber.

**Marissa Yoder Zhao To What Extent Did Mad Cow Disease Affect Demand for Chicken in
the United States?**

This research paper analyzes the effect that Mad Cow Disease had on the demand for chicken in the United States. Data for this research were found by using several data sets from various online sources. The data found has suggested that the occurrence of Mad Cow Disease led to an initial decrease then a rapid increase in demand for chicken in the U.S. Implications of this epidemic include fearful U.S. citizens, changes in purchasing habits, and price changes.

What does it mean to be a man? Apart from physical attributes how does one assert their masculinity? Sociologist Raewyn Connell's theory of masculinity has been a pivotal tool into comprehending the dynamics found in constructing masculinities. Connell's theory is grounded on the notion of hegemonic masculinity, which is a term used to refer a certain type of behavior and manner of being that are made culturally dominant (331 Wedgewood). This idea of hegemonic masculinity provides a masculine foundation in which men construct their identities. However in the masculine arena the ability for a man to establish his voice is based upon a number of societal factors such as economic status, education, social status and national identity. These attributes erect a secure male figure while at the same time destroy the men who lack in these qualities. Therefore, masculinity enacts as a stage in which men attempt to establish themselves. However the psychological development of masculinities in South Asian Diaspora novel is depicted as a complex structure because male identity is heavily constructed on a notion of performance. This concept of performance is reinforced by societal constraints such as economic statues, education and nationality. Therefore ensuring that South Asian men in diaspora text have difficulty in establishing a secure voice. An idea that is illuminated in V.S. Naipaul's "The Mimic Men," and Hanif Kureishi's "Buddha of Suburbia " through the protagonist's' language, interaction with other men, and mirroring expected ideas of masculinity.

Ancestry and genetics were of the utmost importance to the National Socialists. They built their ideology upon the genetic argument that they belonged to a master race, the 'Aryan' race. The National Socialists desired to keep the German race "pure" and eliminate other races. In an attempt to "purify" Germany, they passed blood protection laws, ran genetic tests, and strove to increase the 'Aryan' race, through programs such as 'Lebensborn'. In a final attempt to purify Germany, the National Socialists organized the deportation and elimination of millions of Jews and other races they believed to be "unfit". This research examines the conditions that made the National Socialists' rise to power possible, as well as their ideology and genetic claims. In addition, it takes into consideration the history of Jewish persecution and history of genetics from which the National Socialists drew. This research aims to take apart the justifications backing their ancestral claims and the components that went into building their ideology. It also intends to illuminate the danger of scientific knowledge when manipulated and abused for power.