

# CAPSTONE FESTIVAL

THE SHOWCASE OF UNDERGRADUATE RESEARCH,  
SCHOLARSHIP, AND CREATIVE ACTIVITY AT MARY BALDWIN COLLEGE

SENIOR PROJECTS • HONORS PROJECTS • SPECIAL PROJECTS

MAY 12  
2011



PARTICIPANTS IN THE CAPSTONE FESTIVAL HAVE BEEN NOMINATED BY THE FACULTY BASED  
ON THE HIGH QUALITY AND ORIGINALITY OF THEIR WORK AND HAVE ACCEPTED NOMINATION.

# CAPSTONE FESTIVAL

In the early days of Mary Baldwin Seminary, a Capstone Festival of sorts existed.

“All final examinations were held in public and members of the board of trustees and the townspeople attended to view students parse sentences, do intricate math problems, and recite soliloquies,” writes Professor Emerita of History Patricia H. Menk in her book *To Live in Time; The Sesquicentennial History of Mary Baldwin College 1842–1992*.

By the late 1800s, the practice of public recitations had disappeared. In 2006, Mary Baldwin College inaugurated a new Capstone Festival.

At each year’s festival, a select group of students, nominated by faculty, present their senior, honors, and special projects to the MBC community and the general public. The high quality and breadth of research, scholarship, and creative activities on display is a testament to the legacy of those earlier years and a celebration of our future.

Capstone festival is sponsored by the Advisory Board of Visitors, the Office of Sponsored Programs and Undergraduate Research, and the Committee on Research, Scholarship, and Creative Activity.

# FESTIVAL PARTICIPANTS

## CAROLINE C. BOWLES

**Project and Academic Advisor:** Janet Ewing

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** Friending Social Networks: Why Businesses Should Log On

**Abstract:** One of the most integral parts of society today is our use of social networking sites, and businesses venturing into this uncharted territory are finding that these sites provide a whole new area for connecting with their customer base. These sites provide businesses a range of options in order to reach consumers, with each site having its own unique layout and advantages. Social networking sites offer businesses and their audiences a means of conversing openly and building a trust between each other, leading to a more customized and well-targeted product or service. However, social networking sites are not free from hazards; risks include security breaches, productivity losses, and even damage to the business' reputation. Despite these limited risks, social networking provides a vastly superior outlet for interaction on a massive yet personally connective scale. This project examined the roles that Facebook, Twitter, MySpace, YouTube, and LinkedIn play in this new frontier of business-customer communication.

**Biography:** Caroline Bowles is a business administration/computer information systems major from Bethesda, Maryland. She has most recently worked with the Center for Disease Control and hopes to return there in the future.



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## KELLY BROSE

**Project Advisor:** Chandra Mason

**Academic Advisor:** Heather Macalister

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Cognitive Aspects of Attitudes Toward Adoption

**Abstract:** Each year in the United States, there are at least 6 million pregnancies (Arons, 2010). Almost 40% of these pregnancies are to single women (Stein & St. George, 2009). Of those, 40% of such pregnancies result in abortion, while only one percent of single women with an unplanned pregnancy choose adoption



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(Arons, 2010). In an effort to better understand attitudes towards adoption, the study tested a model in which knowledge about adoption and abortion was hypothesized to predict attitudes towards adoption and abortion. Participant recruitment targeted American citizens who were 18 years of age or older, and a total of 297 respondents completed multiple adoption attitudes scales, an abortion attitudes scale, an abortion knowledge test, and an original adoption knowledge test that was developed by the researcher. Path analysis of the data yielded support for the original model. However, post hoc testing revealed a better fit between the data and a slightly modified version of the model in which knowledge about abortion and adoption predicted abortion attitudes, but only knowledge about abortion predicted adoption attitudes. Adoption and abortion service providers may find this information useful when providing education and services to single women experiencing an unplanned pregnancy, as well as to the general public.

**Biography:** Kelly Brose is a psychology major from northwestern Pennsylvania. She also has an emphasis in mental health work and two minors, one in communication and one in sociology. Upon graduation, she will work for a year or two and then return to school to become a counseling psychologist.

## CARRIE BUTLER

**Project Advisors:** Kenneth Keller and Mary Hill Cole

**Academic Advisor:** Mary Hill Cole

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** The Abolition of the Slave Trade in Great Britain

**Abstract:** The British slave trade began around 1555. By the mid-1700s, some members of British society began to realize the inhumanity and inherent evil in this trade of human flesh. After twenty years of work by abolitionists in Parliament and the general society, Parliament passed the "Act for the Abolition of the Slave Trade" on March 25, 1807. Using letters of abolitionists, slave narratives, anti-slavery tracts, and autobiographies, the author argues that the abolitionists could not have won this fight as individuals and abolition could not have happened without the abolitionists fighting both among the people in society and in Parliament.

**Biography:** Carrie Butler is a history major and elementary education minor from Harrisonburg, Virginia. She is a member of Phi Alpha Theta. After graduation, she will be teaching in the Shenandoah Valley area.



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Participants in the 2010 Capstone Festival.

## CAITLIN COMBS

**Project and Academic Advisor:** Paul Deeble

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** The Effect of Docetaxel and Rapamycin on LNCaP and Neuroendocrine Differentiated LNCaP Cells

**Abstract:** Prostate cancer is the most common cancer in men and the second leading cause of cancer death in American men (American Cancer Society, 2011). In many of these cases, the cancer may progress to a more

invasive and aggressive form that does not respond to hormone therapy. During this time, some cells may undergo neuroendocrine differentiation and facilitate tumor progression. These neuroendocrine (NE)

cells support the growth and survival of the surrounding cancer cells. Thus, developing treatments that target NE cells may aid in cancer therapy. In this study, we investigated whether docetaxel and rapamycin cause apoptosis in cancer cells and differentiated cancer cells. Docetaxel is a well-known and effective chemotherapeutic that is widely used in prostate cancer therapy. Rapamycin inhibits cell signaling pathways and reduces cell proliferation in other cancer types (Amato et al, 2008). LNCaP cells were treated with Forskolin and IBMX to stimulate NE differentiation. MTT and Caspase 3 assays were used to determine if treatment arrested growth and caused apoptosis, respectively. The results of this study show that there is a significant decrease in cell number following all treatments except rapamycin ( $p = 0.000$ ,  $d.f$



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$=7$ ,  $F= 15.912$ ). The results of this study indicate that NE cells are not more susceptible to treatment with docetaxel and rapamycin together, compared to undifferentiated LNCaP cells. In addition, the effects on Caspase 3 activity were not significant. One reason for this could be that the cells are not utilizing a Caspase 3 pathway while undergoing apoptosis. The results of the MTT assays may indicate that NE cells are susceptible to rapamycin but less vulnerable to chemotherapeutics overall.

**Biography:** Caitlin Combs is a biology major with an emphasis in biomedical sciences and a minor in Spanish. She is from Hesperia, California. After graduating, she plans to attend medical school in California or abroad.

## QUINESHA R. CRUZ

**Project Advisors:** Kenneth Keller and Mary Hill Cole

**Academic Advisor:** Amy Tillerson-Brown

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** Charles Hamilton Houston: The Rebel against Jim Crow

**Abstract:** Charles Hamilton Houston was a man who rebelled against the unjust nature of Jim Crow by using a gifted perspective to identify the weaknesses of the federal government in exercising substantive equality. The methodical selection of court cases that Houston and his legal team executed to dismantle Jim Crow is the focus of this study. Ms. Cruz examined court cases and speeches that were argued by Houston and his legal cadre and interviews of everyday people from the Jim



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Crow era. Ms. Cruz's analysis reinforces the view that Charles Hamilton Houston is undoubtedly the unsung and distinctive rebel who brought Jim Crow to its knees.

**Biography:** Quinesha Cruz is a history major with minors in business administration and African-American studies. She was born in Bronx, New York, but was raised in Richmond, Virginia. She currently works for the Department of Defense as a government contractor. She plans to study corporate law and will be applying to law school in the near future to pursue her goals.

## LA'KEISHA DAUGHTRY

**Project and Academic Advisor:** Daniel Stuhlsatz

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Homicide and Inequality

**Abstract:** This project explored the 50 largest populated metropolitan statistical areas for the year 2009 in an attempt to answer a basic research question: how is violent crime, especially homicide, related to social inequality and social well-being? One work that inspired this thesis, "The Spirit Level: Why Equality is Better for Everyone" (Wilkinson and Pickett), argues that social problems are worse in societies with bigger income differences. They show this first among a single set of rich countries and then, to double-check the hypothesis, among the 50 states of the U.S. My project, in a sense, triple-checks the hypothesis by testing a smaller geographic area — metropolitan statistical areas (MSAs). My data analysis is explained from two correlation matrices that I projected and useful information provided from the United States Census Bureau and the Federal Bureau of Investigation. I also use structural functionalism and subculture of violence theory in order to focus my analysis.

**Biography:** La'Keisha Daughtry is an independent major born and raised in Baltimore, Maryland. She plans to enter the policy workforce after graduation.



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## LOGAN DILL

**Project and Academic Advisor:** Gordon Bowen

**Type of Project:** Senior and Honors Project

**Presentation Category:** Delivered paper

**Title:** Do Special Emissaries More Effectively Advance the National Interest of States than Exclusive Reliance on Diplomatic Bureaucracies? A Study of U.S. Special Emissaries' Role in Preserving America's National Interest

**Abstract:** While an established system of



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embassies and diplomats is in place around the globe through the efforts of the Department of State, U.S. presidents have used special emissaries in times of special need and often in very public circumstances. This paper demonstrates how the Department of State has grown and evolved as the United States has recognized and defined its uses over time. It also provides a sampling of how special envoys have been used and demonstrates that, while the Department of State has become a generally respected government resource, it, unlike special envoys, is not equipped to move quickly in situations that require an immediate response or promote issues that need special attention. As American involvement in world affairs grows, we must recognize that special emissaries can more effectively advance the national interest of states than exclusive reliance on diplomatic bureaucracies.

**Biography:** Logan Dill is an international relations major with minors in French and peacemaking and conflict resolution. She lives in Burlington, North Carolina. Logan is currently the president of the MBC Global Honors Scholars Society and the student coordinator of the Quest Interfaith program.

## SELMA ELSARRAG

**Project Advisor:** Anne Allison

**Faculty Advisor:** Christy Baker

**Type of Project:** Special Project

**Presentation Category:** Poster

**Title:** How the Arf6 Protein Regulates B1 Integrin Function in Breast Cancer

**Abstract:** Virginia has one of the highest rates of breast cancer mortality in the country. This research investigates how the small GTPase, Arf6, affects breast cancer pathogenesis. Normally, Arf6 regulates membrane and protein transport (often referred to as trafficking) within the cell. We are analyzing how Arf6 regulates the trafficking of B1 integrin, an integral membrane protein with established roles in cancer pathogenesis. When breast cancer

cells are depleted of Arf6 protein using a siRNA knockdown approach, an increase in cell-surface B1 integrin is observed. When total B1 integrin protein is analyzed by Western blot, two bands of similar size are observed in an Arf6-dependent manner. This finding suggests that Arf6 may regulate a posttranslational modification or alternative form of B1 integrin. Results from this study will enhance our understanding of fundamental cell biology as well as breast cancer.

**Biography:** Selma Elsarrag is biology and math double major from Charlottesville, Virginia, and is a member of the class of 2014. She has no current set plans, but hopes to continue doing research in the future.



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## AMANDA K. FIGUEROA

**Project Advisor:** Catharine O'Connell

**Academic Advisor:** B. Richard Plant

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** American Nonbelief: Roots of Atheism in the History, Philosophy, and Literature of the Modern Period

**Abstract:** In the years leading up to World War I, American religious attitudes were shifting away from strict devotion towards a more secular society. However, years later, at the close of World War II, religiosity in the United States was at a new high.

Examining history, philosophy, and literature throughout the modern era provides insight into the shifting purpose

and fervor of religion in America, as affected by the two World Wars, developing technology, European philosophy, and other influences. Although the roots of nonbelief in America were present throughout this time frame, this work finds that rather than follow European counterparts towards a less religious society, United States culture adapted religious fundamentalism for use as a defining characteristic of what it meant to be American in the last half of the twentieth century.

**Biography:** Amanda K. Figueroa, of El Paso, Texas, will be the first graduate in the American studies program, with a second major in English. She plans to continue her education next year, pursuing post-graduate studies in either American studies or creative writing.



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## REBECCA FROST

**Project Advisor:** Louise Freeman

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** Odor Preference in Asian Musk Shrews

**Abstract:** Asian musk shrews are thought to communicate with each other using scent markings, although the specific ways they do this are not well understood.

Previous work concerning odor preference in our colony has shown that male shrews are attracted to female urine, but females are not attracted to to

male urine [ $F(1,17) = 7.514, p=0.014$ ]. A study using opossums (Zuri, Su, & Halpern, 2003) shows the same sort of urine preference in that species, but also found



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that females are attracted to male musk. Male and female shrews were given two 2-minute preference tests and the time spent investigating wooden or cotton balls scented with their own, a male's, or a female's musk was recorded. Preliminary data analyzed with a two-way ANOVA has shown that neither sex shows musk odor preference [ $F(1,16) = 0.163, p=0.692$ ], but changes to the experimental methods could lead to significant data.

**Project Advisor:** Daniel Métraux

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Abortion in Japanese Buddhism

**Abstract:** The abortion debate in this country is a heated one, but in Japan the case is much different. Buddhism there has evolved to include special rituals for women dealing with abortion or miscarriage. These practices are immensely beneficial to the women who utilize them.

This paper looks at how these rituals are practiced in contemporary Japan, how they developed, and how they benefit women. It also covers modern thinking about abortion, including why it is prevalent in Japan and how the Japanese practices could be applied to help all women.

**Biography:** Rebecca Frost is a double major in psychology and Asian studies from Ashburn, Virginia. She has worked on several experiments involving the shrew colony at Mary Baldwin College and has traveled to Japan to study twice in her college career.

## MELISSA HAISLOP

**Project Advisor:** Daniel Métraux

**Academic Advisor:** Sandra Bagbey

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** China's Environmental Crisis: The Effects of Modernization

**Abstract:** China's modernization has brought significant wealth to the country, but it has also created a major environmental crisis that affects China and the world. The effects are devastating to China's environment, and the problem has now become one of global concern as the effects of the pollution spread globally. China must find a remedy for

the environmental crisis, but the cost of the rehabilitation of the environment could well terminate China's economic growth.

**Biography:** Melissa Haislop is a political science major from Emporia, Virginia. In January, she entered the Master's of Education program at Mary Baldwin College. She will be pursuing a career in education in the fall of 2011.



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Participants in the 2010 Capstone Festival.

## MIRANDA HYNES

**Project and Academic Advisor:** Paul Ryan

**Type of Project:** Senior Project

**Presentation Category:** Visual or audio-visual creation

**Title:** Composing through Color

**Abstract:** My paintings were created to be a visual experience. There is no hidden meaning, although there are many hidden layers. The colors, forms, and processes are not only the visual elements, but also the subject of the work. It is the colors themselves, lying dormant and waiting in their paint tubes, that are my inspiration. Color has always been an integral part of my life, because I believe that the colors we see, whether bright or muted, light or dark, change our perceptions. My goal was to create pieces that need no explanation; no words, however well-written, can make a person's mind see exactly what exists on these canvasses. The question I pose with my paintings is not, "What do these mean?" I simply ask, "What do you see?" and "How long are you willing to look?" because the longer you look, the more you will experience.

**Biography:** Miranda Hynes is a studio art major with emphases in both painting and ceramics. She also has minors in art history, psychology, and piano performance. She received the Kelly Meyers Scholarship in both 2010 and 2011 and also won the Ulyssee Desporte Award for Studio Art. Originally from Norwalk, Connecticut, Miranda will move back to New England after graduation to attend Lesley University, where she will pursue an MEd in community art.



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## KARA RANDOLPH JENKINS

**Project Advisor:** Joseph Sprangel

**Faculty Advisor:** Mary Hill Cole

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** Woodbine Farms: Fresh From the Ground Up

**Abstract:** Farming has a long and rich tradition in the Shenandoah Valley. The farm families that remain today are finding new and creative ways to hold on to their roots. Woodbine Farms, located in Frederick County, Virginia, is no exception. A research project was conducted to help define the future state of the farm operation. The process that was utilized to analyze Woodbine was the SOAR framework. The framework was used to examine the strengths and opportunities of the farm, as well as to frame future aspirations and the development of measures to track the results of the defined initiatives. This strategic framework has effectively focused company goals that has allowed the farm to create a fresh, from-the-ground-up perspective.

**Biography:** Kara Jenkins is a double major in business for a sustainable future and history and is minoring in historic preservation and public history. Her hometown is Stephens City, Virginia. She conducted her senior project on her family's farm because she wanted to contribute to the farm's future growth.



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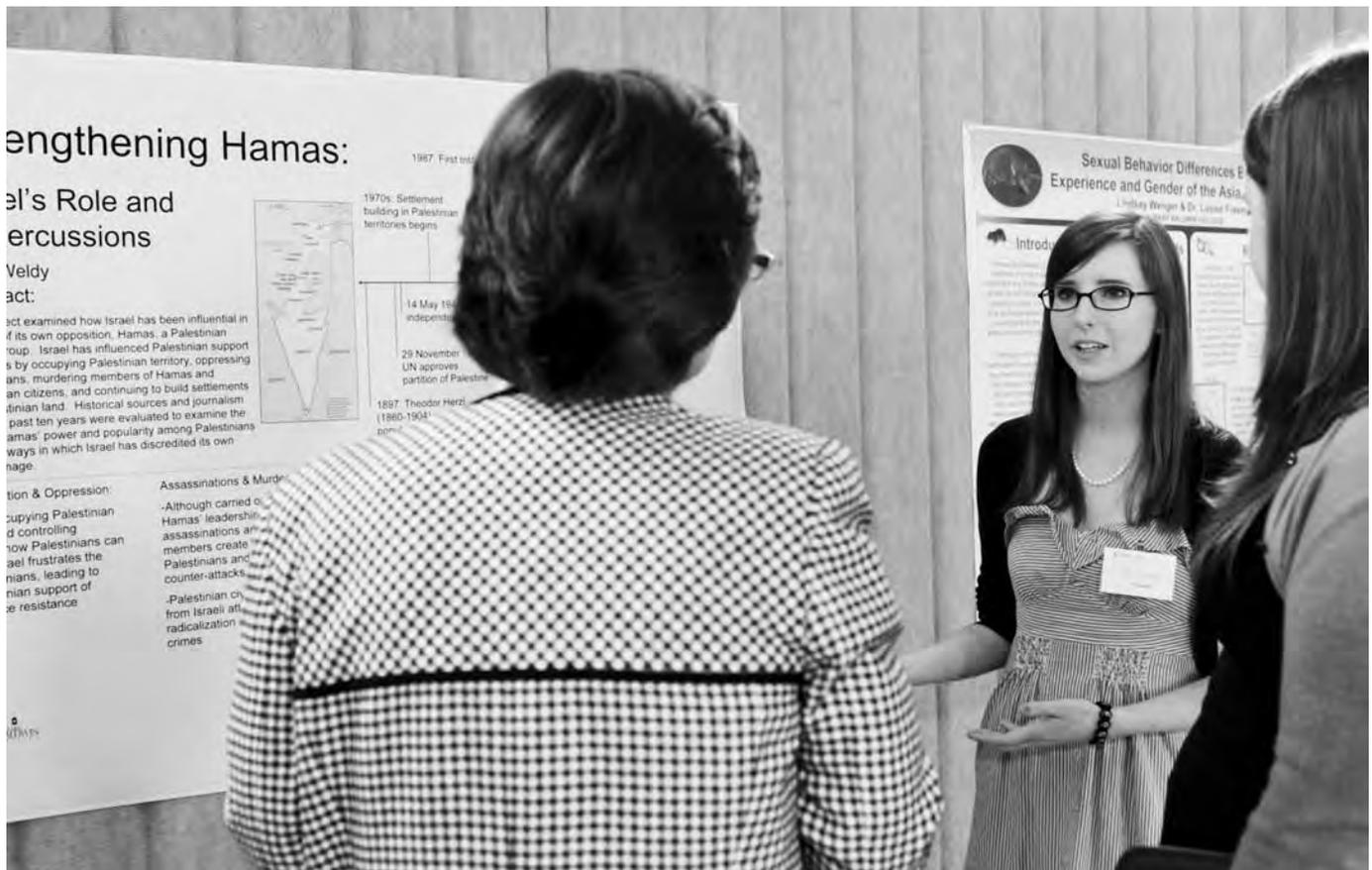


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## SHARON KEMMERER

**Project and Academic Advisor:** Abigail Wightman

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** Korean Students: Campus Integration and Intercultural Competency

**Abstract:** Due to linguistic and cultural barriers, international students often have a difficult time becoming fully integrated on U.S. campuses, particularly terms of developing meaningful relationships with American students. Mary Baldwin has long welcomed international students into her academic programs, and in the 2010-11 school year, these included nine Korean students from



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Sungshin University. This study explored barriers that this group, currently the largest international cohort at the college, faced while attending Mary Baldwin. Utilizing interviews from these Korean students, this study analyzed sociolinguistic, intrapersonal communication, and cultural barriers and ways to overcome them.

**Biography:** Sharon Kemmerer is an Asian studies/anthropology double major who currently resides in Stuarts Draft, Virginia. After graduation, she plans to attend graduate school in order to continue her studies on Asian history, culture and language with a focus on Japan.

## CYNTHIA KIRKLAND

**Project and Academic Advisor:** Paul Ryan

**Type of Project:** Senior Project

**Presentation Category:** Visual or audio-visual creation

**Title:** Modern China: An Experiment in Performance Drawing

**Abstract:** China today is attempting to rediscover itself after the turmoil of the Cultural Revolution and the suffering that pervaded the regime of Mao Zedong.

Creating an identity and finding a sense of voice are major themes that pervade the rapidly modernizing nation. Performance drawing is a term that seeks to create a bridge between traditional media and contemporary



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experimental media such as video, performance, and installation. With drawings on clear vinyl, the concept of identity can be explored through art in performance. Also, through installation and performance, the audience is taken out of its traditionally passive state within the museum environment and allowed to freely move my drawings to create an individualized artistic experience.

**Biography:** Cynthia Kirkland is an Honors Scholar with a double major in studio art and Asian studies. She is currently an intern with Mary Baldwin's Hunt Gallery and the Staunton-Augusta Art Center and received the Desportes Award for Excellence in Studio Art.

## APRIL LAO

**Project Advisor:** Paul Deeble

**Academic Advisor:** Eric Jones

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Effect of CpG Oligonucleotide and LL-37 on Prostate Cancer Growth and Invasion

**Abstract:** CpG oligonucleotides, short pieces of DNA with characteristics of bacterial DNA, have recently been considered as an alternative to chemotherapy. Some studies have shown CpGs to stimulate anti-tumor immune responses with none of the side effects associated with traditional chemotherapy. However, CpG's effects are weak, and results are contradictory, with anti-tumor effects seen in ovarian cancer in mice but increased invasion and decreased growth in the PC-3, LNCaP, and DU-145 prostate cancer cell lines. LL-37 is an antimicrobial DNA-

binding peptide with DNA-binding properties that allow it to increase the body's immune response to CpG. LL-37 is found throughout the body and in higher amounts in breast, lung, and prostate cancer tumors. The combination of CpG and LL-37 has recently been shown to enhance the anti-tumor effects seen with CpG in ovarian cancer in mice. In this project, I investigated the effect of CpG in combination with LL-37 on prostate cancer cell line growth and invasion. I hypothesized that the addition of LL-37 would enhance the effects seen with CpG (i.e. decreased growth and increased invasion). The two cell lines studied were PC-3s, derived from an androgen-independent prostate cancer bone metastasis, and LNCaPs, derived from an androgen-responsive prostate cancer lymph node metastasis. Results indicate CpG+LL-37 increases growth in PC-3 cells but has no effect on LNCaP cell growth or invasion. These results indicate that, contrary to initial beliefs, CpG oligonucleotides in combination with LL-37 should not be used as a therapy.

**Biography:** April Lao is a biology major from Houma, Louisiana. She hopes to become a doctor and is planning to apply to medical school this summer.



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## JENNIFER LEEDOM

**Project Advisor:** Katherine Turner

**Faculty Advisor:** Sarah Kennedy

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** From Orphan to "Other": an Examination of Nineteenth-century Literary Orphans

**Abstract:** Orphans abound in literature, from fairy tales to comic books. This paper examines the special case of nineteenth-century British orphans, specifically Charles Dickens's Pip from *Great Expectations*, Charlotte Brontë's *Jane Eyre*, and Emily Brontë's Heathcliff from *Wuthering*

*Heights*. The analysis relates the novels to the historical realities of being an orphan in the nineteenth century; from this context a theory emerges which proposes that these characters were meant to represent more than

simply orphanhood. By contrasting the relatively "normal" orphan state of Pip to the more isolated states of Jane and Heathcliff, it becomes apparent that the Brontë novels may actually be representing the "other" with their characters, showing how society alienates those perceived as threatening because of their "otherness." With this examination, the novels stand as powerful instances of how literature can expand the scope of human empathy.

**Biography:** Jennifer Leedom is an English major and a women's studies minor from Souderton, Pennsylvania. She hopes to work as an editor at a publishing company, and she is currently applying for internships.



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## SHAAHIDA J. LEWIS

**Project Advisor:** Theresa Rollison

**Academic Advisor:** Jim Sconyers

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** The PrairieDog Campaign

**Abstract:** Controversy has always followed online social networking, with each new networking site created posing a new threat to users and their privacy. Users are driven by the allure of reconnecting and keeping in contact with friends and family via social networking websites, but at what risk? Although most social networking websites promise to protect personal information with the application of secure privacy settings, these settings are often misunderstood by users. Help topics filled with lengthy, and often ambiguous, information leave users baffled and unsure of the fate of their personal information stored online. As if the possible leaking of sensitive information is not enough, users also battle the idea of proper social networking etiquette, with little to no information being provided on this matter. The PrairieDog Campaign is an informative campaign that targets users at their most vulnerable — when they are in the bathroom. It is a poster-based campaign that features a web component, which functions as a device for gauging effectiveness. It has been found that users are more likely to respond to change when the approach is humorous and straightforward versus an approach that appears to prompt change by scaring the user into the



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supported position.

**Biography:** Shaahida Lewis is a studio art major with an emphasis in graphic design and a double minor in art history and computer science. She is a native of Richmond, Virginia, and was the recipient of the Melissa Mitchell Award for May Term Study Abroad, which she used to visit Italy in 2010. She loves traveling, designing, and working with computers, and plans to pursue a career in design, particularly in web and logo design.

## ELISABETH MADDRELL

**Project and Academic Advisor:** Laura van Assendelft

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** A New Facebook Application: How the First Amendment Applies to Facebook

**Abstract:** Facebook has become a social networking phenomenon, reaching 500 million users in 2010. However, with the explosion of daily usage, the question of whether or not the First Amendment applies to information shared and disseminated through Facebook has arisen. Many think of Facebook as a quasi-public arena to post private information, but what happens when a private post becomes public? Is that speech protected under the First Amendment? The First Amendment is cherished by all Americans; however, as decades have passed, the interpretations of the Amendment have mirrored the progressions of society, and as Facebook grows in popularity, so do the legal cases surrounding it. The cases of *Tinker v. DeMoinis*, *Bethel v. Fraser*, and *Pickering v. Board of Education* shed light on how the courts will rule on Facebook cases. Although there are some varied distinctions that Facebook cases raise, the Supreme Court has set a precedent that First Amendment rights outweigh all others as long as the educational environment is not hindered in any fashion.

**Biography:** Elisabeth Maddrell is a political science major from Vienna, Virginia. While at Mary Baldwin she has focused on law and served as an intern with the Staunton-Augusta Victim Witness Program. After graduation she will go on to work for the Sorensen Institute for Political Leadership.



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## BARBARA MAY

**Project and Academic Advisor:** Steven Mosher

**Type of Project:** Senior and Honors Project

**Presentation Category:** Multi-media supported presentation

**Title:** Physician Recruitment and Retention: A Case Study of Rockingham Memorial Hospital and Martha Jefferson Hospital

**Abstract:** The purpose of this study was to compare and

contrast the recruitment programs and turnover rates for employed physicians at two community hospitals in Virginia: Rockingham Memorial Hospital (RMH) and Martha Jefferson Hospital (MJH). The study used information from interviews with RMH's Valley Health Plan & Medical Access Staff Force and MJH's Director of Physician Services to examine whether the hospitals are offering effective salary and incentive packages for recruiting



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more physicians into their employed physician staff. Retention of the physicians they already have and the sustainability of the current recruitment plan in today's health care environment were also evaluated. Results indicate that MJH and RMH have many similarities in their recruitment plans, despite differences in turnover rates. However, both hospitals have room to improve communication with physicians for cost-saving initiatives, future changes to value-based compensation, and legislation implementation.

**Biography:** Barbara May is a health care administration major with an emphasis in public health, and she will also receive a minor in leadership through the VWIL program. She is from Houston, Texas, and plans to return home after graduation to earn a dual master's degree in the MHA/MBA program at the University of Houston-Clearlake.

## DAVE MELVIN

**Project Advisor:** Judy Klein

**Faculty Advisor:** Nicole Oechslein

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Credit Card Interchange Fees

**Abstract:** The credit card network market is a duopoly;

Visa and MasterCard are the two dominant players. The Visa or MasterCard network of the issuing banks charges the merchant an interchange fee for every credit card transaction. This project describes the process of a transaction and the

role interchange fees play. Also discussed is the theory of duopoly, data on the market concentration, history of interchange fees, and current and past policies such as the Credit Card Reform Act of 2009 and the Credit Card Fair Fee Credit Act currently being proposed in Congress. Finally, the study examines the possible effects on the Visa-MasterCard duopoly if regulation is imposed on interchange fees.

**Biography:** Dave Melvin is an economics major from Staunton, Virginia. A husband and a father of two, he is



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excited to be finishing his degree through MBC's Adult Degree Program. Dave has been a mortgage broker for 15 years and hopes to eventually teach in the Staunton school system.

## ERIKA MIKHAILOVA

**Project and Academic Advisors:** Sara James and Marlena Hobson

**Type of Project:** Senior Project

**Presentation Category:** Presentation with multi-media support

**Title:** Bosch and Bruegel: Bedknobs and Broomsticks; A Study of Witchcraft, Heresy and Hypocrisy

**Abstract:** Up until the 1950's, the more bizzare work of sixteenth century Flemish artist Peter Bruegel the Elder and his stylistic predecessor Hieronymus Bosch

were largely regarded by scholars as droll flights of fantasy. Erika has built upon scholarship that identifies sociopolitical criticism and counter-culture religious overtones within these artists' work, which opposes the Spanish rule of the Netherlands and the Inquisition. She examines the themes of heresy, witchcraft, and hypocrisy within a selection of Bruegel's paintings and etching sketches, linking them to the writings of Dirk Coornhert, a Spiritualist author who refuted the reality of witchcraft



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and opposed corporal punishment, and Jan Wier, a student of Cornelius Agrippa, known as the "father of psychiatry," who argued that the symptoms of witchcraft were psychosomatic and not demonic possessions.

**Biography:** Erika Mikhailova is an adult degree student native to the Pacific Northwest who has lived in Virginia since 2003. She is single mother with an art history and studio art major and an education minor. She participated in the 2010 Capstone Festival for her exhibit "A Creation Story." Erika has recently finished her student teaching for a PK-6 license and is looking for employment in the local area as a primary teacher.

## AMY MONTOYA

**Project Advisors:** Kenneth Keller and Mary Hill Cole

**Academic Advisor:** Nicole Oechslin

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** The Dance of Skeletons: An Analysis of the Causes of the Pullman Strike

**Abstract:** In the 1880s, George Pullman built his model town of Pullman, Illinois, to house the workers who worked at his Pullman Palace Car Company. During this era of strife between capitalists and laborers, Pullman received a reputation as a benevolent employer. In actuality, tensions also simmered among his



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Participants in the 2010 Capstone Festival.

employees as a result of Pullman's rigid, paternalistic control of his town. The Depression of 1893 added fuel to these already existing tensions, and the Pullman Strike of 1894 was the result. Pullman, along with many other businessmen and government officials, condemned the strike as unjustifiable. However, an examination of the United States Strike Commission Report submitted to President Cleveland in 1895 showed otherwise. Pullman's policies during the Depression, including maintaining low wages and high rents, along with his refusal to negotiate or participate in arbitration, brought his employees to a place of desperation, which justified the actions of the strikers.

**Biography:** Amy Montoya is a history major with a minor in elementary education. She was named a 2011 Teacher of Promise. Amy resides in Staunton, Virginia, and plans to pursue a career in elementary education.

## ADASUE MYERS

**Project Advisor:** Marlena Hobson

**Academic Advisor:** Sara James

**Type of Project:** Senior and Honors Project

**Presentation Category:** Presentation with multi-media support

**Title:** The Personal Window of Paula Modersohn-Becker

**Abstract:** Paula Modersohn-Becker's life and vibrant artistic career provides a unique view into the turn of the twentieth century's shifting



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ideology concerning female duty in Germany and Europe. Three avant-garde thinkers, poet Rainier Maria Rilke, feminist writer Ellen Key, and philosopher Frederic Nietzsche, influenced Modersohn-Becker's views on the social and personal issues explored in her art. The tension between these three perspectives and Modersohn-Becker's own beliefs is evident in the artist's personal iconography. In particular, nine paintings of pregnant mothers and mothers with children from 1898 to 1907 reflect Modersohn-Becker's evolving view of maternity. Modersohn-Becker's works exemplify the struggle between the evolving social and political expectations of women's role in society.

**Biography:** AdaSue Myers is an arts management major with a concentration in visual art. She is from Christiansburg, Virginia. As an aspiring art historian, AdaSue has hopes of working at a gallery or museum within a few years, after taking a year to travel around the world.

## KIMBERLY PARKER

**Project and Academic Advisor:** Laura van Assendelft

**Type of Project:** Senior Project

**Presentation**

**Category:** Delivered paper

**Title:** Clinton v. Obama v. Presidential Health Care Reform Agendas

**Abstract:** In both 1992 and 2008, health care reform was a major



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presidential priority. President Bill Clinton and President Barack Obama used different strategies to pursue their reforms, and one was more successful than the other in the passage of legislation. This study used political scientist and presidential scholar Paul Light's theory of presidential agenda-setting to compare and contrast the two approaches, focusing on the relative significance of five factors: popularity of the president; party unity and control of Congress; public opinion about the policy issue; the effects of rhetorical strategies; and the size and timing of the policy window.

**Biography:** Kimberly Parker is a political science major from Chesapeake, Virginia, with minors in peacemaking and conflict resolution and economics. After graduation, she will take part in the Phoenix Project's Social Innovation Program at George Mason University and will apply the skills learned there doing work for the American Cancer Society. Kim then plans to continue her studies by pursuing a master's degree in public policy.

## MEG PITTS

**Project and Academic Advisor:** Mary Hill Cole

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** The Importance of Collaboration: Wyatt's Rebellion of 1554

**Abstract:** In late 1554, Mary I, Queen of England, informed her Privy Council of her intentions to marry Philip II of Spain. Many people fervently opposed the match, and once it was understood that Mary would not be deterred, a group of noblemen took it upon themselves to stop the marriage. Their actions ultimately led



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to the event known as Wyatt's Rebellion of 1554, which failed due to the leading conspirators' differing personal agendas and intended results of the rebellion.

**Biography:** Meg Pitts is a history major with a minor in secondary education. She lives in Hadensville, Virginia. After graduation she plans to join the Peace Corps or attend graduate school.

## AUSTEN RAWLE

**Project Advisor:** Anne Allison

**Type of Project:** Special Project

**Presentation Category:** Poster

**Title:** How the Arf6 Protein Regulates B1 Integrin Function in Breast Cancer

**Abstract:** Virginia has one of the highest rates of breast cancer mortality in the country. This research investigates how the small GTPase, Arf6, affects breast cancer pathogenesis. Normally, Arf6 regulates membrane and protein transport (often referred to as trafficking) within the cell. We are analyzing how Arf6

regulates the trafficking of B1 integrin, an integral membrane protein with established roles in cancer pathogenesis. When breast cancer cells are depleted of Arf6 protein using a siRNA



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knockdown approach, an increase in cell-surface B1 integrin is observed. When total B1 integrin protein is analyzed by Western blot, two bands of similar size are observed in an Arf6-dependent manner. This finding suggests that Arf6 may regulate a posttranslational modification or alternative form of B1 integrin. Results from this study will enhance our understanding of fundamental cell biology as well as breast cancer.

**Biography:** Austen Rawle is a mathematics major from Kamuela, Hawaii. After graduating in the spring of 2012, she hopes to attend medical school and go into neurosurgery.

## KATHLEEN HUNTER LEA TODD

**Project Advisor:** Roderic Owen

**Academic Advisors:** James E. Gilman and Daniel Métraux

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** Philiabook: Examining the Changing Ideas Concerning Friendship in a Contemporary Context

**Abstract:** Since the proliferation of an interactive internet or Web 2.0, we have seen a surge of people taking up their keyboards and actively participating in the development of human presence online. Users of social networks and online communities are able to create, develop and refurbish their online identities, which may or may not be rooted in reality. Just as many prior technologies have re-defined our understanding of certain ideas and practices, so too does interactive social networking re-define our ideas of friendship. Using, in particular, Aristotle's theory of "perfect friendship," this project demonstrates just how far from perfect our contemporary digital friendships are becoming.



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**Biography:** Kathleen Todd is a double major in Asian studies and philosophy who hails from from Houston, Texas. After graduation, she plans to pursue a higher degree in philosophy after getting some work experience with the Houston International Film Festival. Kathleen enjoys sailing, travel and collecting perfect moments.

## JOANNA TORRES

**Project and Academic Advisor:** Ivy Arbulú

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** Crónica De San Gabriel: Comparative Lifestyle and Tolerance Issues Among Peruvian Andean Populations

**Abstract:** Crónica De San Gabriel, by Julio Ramon

Ribeyro, is a Peruvian novel that depicts the life of a typical wealthy Andean family of the early 20th century through the eyes of a Limean adolescent. Although Ribeyro claims that it is not an indigenous novel, predominant themes surrounding the treatment of indigenous people by the Peruvian upper class tend to prove otherwise. Joanna's thesis explores these themes in a quest to prove that it is, in fact, an indigenous novel.

**Biography:** Joanna Torres is a Spanish and anthropology double major from Houston, Texas. After she graduates, Joanna plans to continue her education and build a career as a translator.



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## PERRI WELDY

**Project Advisor:** Gordon Bowen

**Academic Advisor:** Daniel Métraux

**Type of Project:** Senior Project

**Presentation Category:** Delivered paper

**Title:** Wikileaks: A Threat to US National Security Regarding Pakistan?

**Abstract:** In the summer of 2010, Wikileaks Organization leaked thousands of documents pertaining to the war in Afghanistan, known as the Afghan War Diary. At the time, the leak was one of the largest leaks of classified government documents in the history of the United States. Ms. Weldy investigated the influence of the leaks on the U.S.-Pakistan alliance and relations and on the impact on the United States' national security regarding its relationship with Pakistan. She provided brief histories of Pakistan and U.S.-Pakistan relations before analyzing the implications of Wikileaks and specific documents leaked within the Afghan War Log.

**Biography:** Perri Weldy is from Starrucca, Pennsylvania. She double-majored in international relations and Asian studies and minored in peacemaking and conflict resolution. After graduating from Mary Baldwin, Perri plans to work within the intelligence or foreign service fields.



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## GARIKA T. WILLIAMS

**Project and Academic Advisor:** Daniel Stuhlsatz

**Type of Project:** Senior Project

**Presentation Category:** Poster

**Title:** Post-Traumatic Stress Disorder in Combat Soldiers

**Abstract:** Since Vietnam veterans brought to light post-traumatic stress disorder (PTSD), it has become a leading psychological disorder for veterans. With the current engagement in Afghanistan and Iraq now becoming the longest war fought in American history, there has been an increase of interest in the psychological damage suffered by veterans. Drawing on structural functional and symbolic interactionism, this study summarizes research on various risk factors that contribute to the

development of post-traumatic stress disorder and takes a look at the significance of social support to those affected. An exploratory content analysis of qualitative data (blogs and forums) further investigates the link between social relationships and PTSD and how this linkage varies based on the risk factors.

**Biography:** Garika Williams is an independent major in sociology and psychology from Crozet, Virginia. She plans to work during the summer to save for a move to Atlanta, Georgia, where she hopes to work for a few years and put her degree to use before eventually returning to Virginia to open a restaurant.



PHOTO BY ADRIANA BIBERAJ

## MAY TERM ABROAD CAPSTONE NOMINEES

The following students were nominated for the Capstone Festival but are unable to participate because they are on study abroad programs during May Term. We include their information here in recognition of their achievement and commitment to international awareness.

### SAMANTHA ENGSTLER

**Project Advisor:** Paul Deeble

**Academic Advisor:** Eric Jones

**Type of Project:** Senior Project

**Title:** Melatonin's Role in the Death of Prostate Cancer Cell Lines

**Abstract:** Prostate cancer is the second leading cause of cancer related of death in men. Prostate cancer begins as a hormone-dependent cancer and often progresses into a hormone-independent cancer. Melatonin, a hormone secreted by the pineal gland, has been shown to increase apoptosis in hormone-dependent prostate cancer but not in hormone-independent prostate cancer. The purpose of this study was to examine the effects of melatonin on prostate cancer cell death in the absence of serum. Melatonin treatment did not affect the apoptosis level in hormone-independent prostate cancer cells, but melatonin did increase apoptosis in hormone-dependent prostate cancer cells when melatonin was in a higher concentration. These results suggest that melatonin could be utilized as an adjuvant therapy in the fight against early stage hormone-dependent cancers.

**Biography:** Samantha Engstler is a biology major from Charlottesville, Virginia. Samantha is minoring in education and is currently enrolled in the five-year BA/MAT program here at Mary Baldwin College; she will graduate next spring with a MAT in education and special education.

### RACHAEL ANN PHILLIPS

**Project and Academic Advisor:** Mary Hill Cole

**Type of Project:** Senior Project

**Title:** French Aid in the Revolt of Owain Glyndŵr

**Abstract:** The beginning of the fifteenth century in England saw an eruption of discontent and violence stemming from tensions which had been brewing for many years. In the aftermath of the deposition and murder of Richard II, a land dispute between a Welsh land owner and an English lord quickly escalated into a revolt that would garner international support. With offers of aid from France, Owain Glyndŵr bravely took on the cause of Welsh independence. However, the aid received from France was lackluster and nowhere near its full potential. If the full resources of French foreign aid had been given to the Welsh, then Glyndŵr might have been successful in his quest for Welsh independence.

**Biography:** Rachael Phillips is a history major with minors in historic preservation and public history. Her hometown is Waynesboro, Virginia. She plans to take a year to work and gain career experience before applying for graduate programs in library science in the fall of 2012.



PHOTO BY WOODS PIERCE

Participants in the 2010 Capstone Festival.

Congratulations to all students participating in the  
**2011 CAPSTONE FESTIVAL**

Nomination to the Capstone Festival is in itself a high honor. To recognize extraordinary achievement, top honors will also be given in each presentation category (delivered papers; presentations with multi-media support; posters; and visual/audio-visual creations). Panels of three judges will evaluate the creativity, challenge, and execution of the projects as well as the ability of the presenters to communicate the content and significance of their work to a general audience. Top honors awards are accompanied by a cash prize of \$150.