

ASSUMPTION COLLEGE

April 18 & 19

17th Annual



Undergraduate SYMPOSIUM

2011





ASSUMPTION COLLEGE

Office of the Provost and Academic Vice President

Welcome to the *17th Annual Undergraduate Symposium*, highlighting the research and scholarly achievements of Assumption students working in collaboration with dedicated faculty mentors. These collaborations represent a model for integrating teaching, original research, and the beneficial effects of peer review in promoting intellectual development and professional growth. The *Symposium* provides the campus community the opportunity to gain a greater appreciation of the individual and collective accomplishments of our faculty and students, as well as to applaud those achievements.

I hope that you enjoy and profit from viewing the posters, hearing the papers, and speaking with the authors of this impressive work.

Sincerely,

Francis M. Lazarus
Provost and Academic Vice President

Undergraduate Symposium

*La Maison Française Auditorium &
Testa Science Center Fuller Auditorium and Atrium*

Program Schedule

Monday, April 18, 2011

- | | |
|-----------------|---|
| 11:30 a.m. | Arrival & set-up |
| 12:00 p.m. | Welcome, Dr. Francis Lazarus, Provost
(La Maison Auditorium) |
| 12:00-1:15 p.m. | Presentation Session I (La Maison Auditorium) |
| 1:30-3:00 p.m. | Presentation Session II (Testa Fuller Auditorium) |

Tuesday, April 19, 2011

- | | |
|-----------------|---|
| 12:00-1:15 p.m. | Presentation Session III (Testa Fuller Auditorium) |
| 1:45-2:45 p.m. | Poster Session I (Testa Atrium) |
| 3:00-4:15 p.m. | Presentation Session IV (La Maison Auditorium) |
| 5:00 p.m. | Dinner for student presenters and mentors (Hagan Hall). Greetings from Dr. Francesco Cesareo, President. |
| 5:20-6:00 p.m. | Keynote Address, " <i>Undergraduate Research at Liberal Arts Colleges: Clark's LEEP Approach,</i> " by Dr. Colin Polsky, Clark University (Hagan Hall) |
| 6:15-7:30 p.m. | Poster Session II (Testa Atrium) |



Dr. Colin Polsky

Associate Dean for Undergraduate
Research & Active Pedagogy
Associate Professor of Geography
Director, HERO NSF REU Site Program
Clark University
Keynote Speaker

Dr. Colin Polsky is Associate Professor of Geography, and Associate Dean for Undergraduate Research & Active Pedagogy, at Clark University in Worcester, Massachusetts (USA). Dr. Polsky received his Ph.D. and M.S. (Geography) degrees from the Pennsylvania State University, and B.S. (mathematics) and B.A. (humanities, French) degrees from the University of Texas at Austin. He also completed a two-year Postdoctoral Fellowship at Harvard University, with the Research and Assessment Systems for Sustainability program in the John F. Kennedy School of Government.

Colin is a geographer specializing in the human dimensions of global environmental change, emphasizing the assessment of vulnerability to the effects of climate change. He has acquired ~\$3M in extramural funding for his team-based research, mostly from the US National Science Foundation. His work has explored ways to blend quantitative and qualitative methods in studies of the U.S. Great Plains, the Arctic, and New England.

Colin is also Director of the Human-Environment Regional Observatory (HERO; <http://hero.clarku.edu>), which is an undergraduate research program built on and funded by the US National Science Foundation "REU Site" model.

Dr. Polsky's web page is:

[http://www.clarku.edu/departments/geography/people/
facultybio.cfm?id=296&progid=15&](http://www.clarku.edu/departments/geography/people/facultybio.cfm?id=296&progid=15&)

Presentation Session I

Monday, April 18, 2011

La Maison Auditorium

- 12:00 p.m. ***Effects of Acute Delirium on Dementia***, Lauren DeVita '12, Natural Sciences
- 12:15 p.m. ***The Effects of Anxiety on Information Processing: Trait Anxiety vs. State Anxiety in Attentional Bias***, Angela Harris '11, Psychology
- 12:30 p.m. ***Does Socioeconomic Status Still Determine TB Awareness? What Can Household Surveys Tell Us About the Success of TB Awareness Campaigns?***, Daniel Mansuk Han '12, Economics
- 12:45 p.m. ***War, On Drugs?***, Lauren Keating '11, History
- 1:00 p.m. ***Stacy O'Bey: Defying Gender Roles and Stereotypes***, Jamie Marrone '11 & Erin Theriault '11, Women's Studies

Presentation Session II

Monday, April 18, 2011

Fuller Auditorium, Testa Science Center

- 1:30 p.m. ***Repressed or Oversexed? An Examination of Puritan Ideology and Practice***, Thomas McGinley '11, History
- 1:45 p.m. ***Breaching Gender: Male Impersonators in Eighteenth and Nineteenth Century Print Culture***, Marybeth Mulligan '12, History
- 2:00 p.m. ***Is Same-Sex Marriage Detrimental to Society: A Review***, Grace Kennedy '11, Sociology
- 2:15 p.m. OPEN
- 2:30 p.m. ***Vincent Van Gogh***, Susan Konola '11, Art History
- 2:45 p.m. ***John's Gospel and Jazz***, Justine McElroy '11, Theology

Presentation Session III

Tuesday, April 19, 2011

Fuller Auditorium, Testa Science Center

- 12:00 p.m. ***Pope Innocent X: Power, Papacy, and Politics in Piazza Navona***, Christina Acunzo '11, History
- 12:15 p.m. ***Woman in Exile: Hannah Arendt in America***, Brianna Murphy '12, History
- 12:30 p.m. ***The Theme of Role Reversal in the Gospel of Luke***, Nicholas DiAntonio '12, Theology
- 12:45 p.m. ***Arriving in America: The Struggle of School Aged Recently-Immigrated Children in the United States Today***, Alexandra Shumway '11, Sociology
- 1:00 p.m. ***Ecological Effects of a High White-Tailed Deer Population and Hunting as an Effective Control Measurement***, David Taddei '11, Natural Sciences

Poster Session I

Tuesday, April 19, 2011

Atrium, Testa Science Center

1:45 - 2:45 p.m.

Jeffrey Starr, Michelle Barrows, Stephanie Joy Bouley,
Gajinder Hoonjan, Michael Brede, Nicole Marrotto

Presentation Session IV

Tuesday, April 19, 2011

La Maison Auditorium

- 3:00 p.m. OPEN
- 3:15 p.m. ***Worcester Women's Oral History Project: Interview with Dr. Ogretta McNeil***, Megan Evangelista '13 & Katerina Reilly '14, History
- 3:30 p.m. ***A Woman's Choice: Interview with Susan Strandberg***, Savannah Harvey '12 & Nicole Smith '12, History
- 3:45 p.m. ***Finding the Regular Woman***, Paula DeCosta '13 & Hannah-Lee Hilsman '13, History
- 4:00 p.m. ***Government Disinformation in Vietnam***, Matthew Gagliardi '11, History
- 4:15 p.m. ***In What Ways Have Aid and Trade Shaped the Great Recession?***, Chris McDermott '11, Economics

Poster Session II

Tuesday, April 19, 2011

Atrium, Testa Science Center

6:15 - 7:30 p.m.

Chris Fallago, Grace Kennedy, Sarah Lyons, Jessica Palladino, Makenzie Tonelli, Mona Al-Abadi, Celia Fox, Jillian Martucci, Robert DiGiammarino, Jacquelyn Nardelli, Marybeth Mulligan

ABSTRACTS

Presentation Session I

Effects of Acute Delirium on Dementia

Lauren DeVita '12, Natural Sciences

Acute delirium caused by a superimposed medical, surgical or traumatic illness may cause worsening of dementia. I observed examples of these problems as a college student emergency medicine intern at the Emergency Department of the University of Massachusetts Medical Center. As defined by the DSM-IV-TR, dementia is the development of multiple cognitive deficits that include memory impairment. Major types of dementia include Alzheimer's Disease, Vascular Dementia and Lewy Body Dementia. Dementia syndromes may be associated with other medical disorders including Parkinson's Disease, Multiple Sclerosis, organ dysfunction, trauma and infections. Although often confused, delirium is very different from dementia. Delirium is an abnormal mental state, not a disease. It suggests a newly developed problem, and unlike dementia, can be cured. An acute confusional state such as delirium may develop in dementia patients due to an infection, such as a urinary tract infection (UTI) or pneumonia. Traumatic incidents such as a fall, resulting in head injury or hip fracture, worsen dementia due to multiple metabolic stresses, complicated by use of medications such as analgesics. I observed an Alzheimer's patient with a urinary tract infection whose mental status had decreased rapidly with a sudden onset of delirium within one week. I observed another Alzheimer's patient who came in with severe delirium due to a change in her medication. These frequencies of events in the Emergency Department contribute to delirium becoming a major problem for dementia patients.

Faculty Mentor: Dr. Owen Sholes

***The Effects of Anxiety on Information Processing:
Trait Anxiety vs. State Anxiety in Attentional Bias***

Angela Harris '11, Psychology

Attentional bias refers to the inaccurate perception of, preference toward, or quicker identification of either positive or negative emotional information. Those high in anxiety exhibit a negative attentional bias, a bias towards negative/threatening stimuli. This negative attentional bias influences their perception of the surrounding world, including how they perceive others, as well as themselves, which reinforces their anxiety and influences their responses and behaviors. The current study expands upon past research on attentional bias in high anxiety individuals by examining the relative effects of trait versus state anxiety on attentional bias toward threatening, pleasant, and neutral information in healthy individuals. Researchers also examined if and how the introduction of a state of anxiety differentially affects the attentional bias of people with lower versus higher levels of trait anxiety.

Faculty Mentor: Dr. Sarah Cavanagh

***Does Socioeconomic Status Still Determine TB Awareness?
What Can Household Surveys Tell Us About the
Success of TB Awareness Campaigns?***

Daniel Mansuk Han '12, Economics

Background: The advocacy, communication and social mobilization (ACSM) component of the Stop TB Strategy (previously DOTS) seeks to enhance TB awareness, especially among the poorest and the most vulnerable, to minimize further transmission of TB within a community. Successful ACSM should result in a weak correlation between socioeconomic status and TB awareness. Method: To evaluate this correlation, we use data from the Demographics and Health Surveys (DHS) conducted during 2005-2008 for eight high-burden countries: Bangladesh, India, Pakistan, Cambodia, Philippines, Ethiopia, Nigeria, and Zimbabwe. The DHS asks respondents if they have heard of TB and adds various questions to gauge accuracy of information about TB and

the extent of stigma attached to TB. We used probit regressions ($p < 0.05$) to estimate the impact of the respondents' socioeconomic characteristics upon their answers to each set of questions. The sample consisted of primarily female respondents ($n=232,161$) and supplementary male respondents ($n=106,830$); India comprised 50-60% of the entire sample. Result: Despite the differences across countries, age, education, and wealth showed statistical significance to TB awareness in all countries studied. The influence of the HIV/AIDS epidemic on TB stigma was also evident in Ethiopia, Nigeria and Zimbabwe. Conclusion: Without an effective vaccine against adult pulmonary TB, ACSM remains as important as antibiotics. Our results suggest that educating the socioeconomically disadvantaged population requires greater attention and funding. Our results also suggest that although treatment regimens must remain universal, ACSM strategies can be carefully localized. Learning objective: Discuss how TB awareness campaigns can be more effectively targeted and assess the size and importance of gaps in TB awareness.

Faculty Mentor: Dr. Smriti Rao

War, On Drugs?

Lauren Keating '11, History

The relationship between the Vietnam War and illicit drugs is both highly exaggerated and severely underestimated. The image of a soldier, high on narcotics, is often used as a way to justify losing the war while inaccurately implying that US troops were constantly under the influence. This overrepresentation is due to the fact that the CIA played a leading role in the growth of drug trafficking with their covert operations in Southeast Asia causing a vast increase in the availability of the drugs that so severely impacted American troops. The government's anti-drug policies as a result of the Vietnam War gave the impression that America was feverishly fighting the transport of illegal drugs at the same time that CIA planes and officers were using government funded equipment to supply worldwide markets with heroin and other illegal substances.

Faculty Mentor: Dr. Deborah Kisatsky

Stacy O'Bey: Defying Gender Roles and Stereotypes
Jamie Marrone '11 & Erin Theriault '11, Women's Studies

For our Women's Studies Oral History Project, we chose to interview Stacy O'Bey, a local resident and mother. This oral history project was done by the Women's Studies Program in collaboration with the Worcester Women's Oral History Project and aimed to study the lives of ordinary local women and examine the impact of these women on the history, present, and future of Worcester. Stacy O'Bey was born in Worcester, Massachusetts in 1978 and now resides in Rutland, Massachusetts. Stacy grew up in a family that was very close knit, and her family instilled in her values and charisma that she still carries with her today. Although Stacy's mother was a stay at home mother, she persuaded her daughter to always follow her dreams and to choose a career that she loved. In college she majored in horticulture, and received both her undergraduate and master's degree at the University of Maine. Stacy chose to enter a male dominated profession because it was something that she was very passionate about, and she did not feel that gender roles should restrict her from her dream job. Stacy chose to defy society's traditional gender roles in not only her male dominated career, but also through her role in motherhood as well. Having Stacy as an interviewee was pivotal for making connections and comparisons between her life and what was being learned in our Women's Studies class. Stacy was an example of a strong woman and mother who defied traditional gender roles, and chose to live her life in a way that made her and her family happy. She is an inspiration to women and men alike, and lives her life in a manner that all people should admire.

Faculty Mentors: Dr. Carl Keyes & Dr. Maryanne Leone

Presentation Session II

Repressed or Oversexed? An Examination of Puritan Ideology and Practice

Thomas McGinley '11, History

From its inception, the Puritan mission in the New World was predicated upon sexual-religious mores and an attempt to impose a rigorous uniformity in sexual relations and attitudes within a spiritual context. These sexual attitudes and ideals were, however, far more complicated than the popular conception of a sexually repressed Puritan hegemony. Furthermore, these attitudes and ideals were expressed in a litany of sexual praxes that often befuddled church leaders who were, more or less, attempting to correct behavior among Puritans who considered their behavior to be perfectly acceptable. In order to best understand the relationship between Puritan sexual ideals and practices, it is highly salient to examine the writings of three of the most important early Massachusetts thinkers and leaders—namely John Cotton, Sr., John Winthrop, and William Bradford—and to examine how it is that loftier ecclesiastical sexual and family ideals compared and contrasted with the private lives of English Puritans in the New World.

Faculty Mentor: Dr. Carl Keyes

Breaching Gender: Male Impersonators in Eighteenth and Nineteenth Century Print Culture

Marybeth Mulligan '12, History

In early America, a common narrative arose from books, pamphlets and children's literature that featured women who impersonated men. The reasons cited for doing so were often to achieve goals a woman could not, such as enlisting in the military, traveling alone, or escaping such fates as poverty or prostitution. The possibility that a woman might decide to impersonate a man because she desired to was carefully avoided. In these published narratives, women who masqueraded as men were rendered hapless victims of circumstances beyond their

control that made male impersonation a necessary last resort. A woman's decision to masquerade as a man in early America required an uncommon degree of agency, yet narratives depicting women who made the ultimate escape from the confines of gender consistently presented these women as passively and reluctantly succumbing to outside forces. Even when they demonstrated that they were capable of performing the same roles as men, male impersonators in late eighteenth and nineteenth century print culture could not escape the ingrained belief that women were ultimately incapable of significantly shaping the course of their own lives.

Faculty Mentor: Dr. Carl Keyes

Is Same-Sex Marriage Detrimental to Society: A Review

Grace Kennedy '11, Sociology

The purpose of this study was to explore the social science literature on the impact of same-sex marriage on society. The study was primarily a meta-analysis of the literature, where major themes were drawn out of the research that served the basis for providing a theoretical explanation about the impact of same-sex marriage. In addition to reviewing the literature on the societal impact of same-sex marriage, the Proposition 8 California Supreme Court trial held in 2010 was used as a case study to see how social science research was used to support or argue against the legalization of same-sex marriage. The results of the review revealed that the social science literature finds same-sex marriage to have no negative impact on society. The research further revealed that while same-sex marriage has no documented negative impact on society, the debate regarding these marriages in America is largely rooted in the symbolic meaning of marriage. For those opposed to same-sex marriage, allowing same-sex couples to marry would undermine the sacred meaning of marriage. For those who are in favor, same-sex marriage would not only afford same-sex couples the material benefits of marriage, but also allow them to have the same symbolic status in society as heterosexual couples.

Faculty Mentor: Dr. Steven Farough

Vincent Van Gogh

Susan Konola '11, Art History

In the study of paintings by Vincent van Gogh, it's difficult to separate the artist from the artwork. In a selection of four of his works: *The Night Café*, *The Starry Night*, *Self Portrait with Bandaged Ear*, and *Wheat Fields under Threatening Skies*, we begin to see how life experiences and personal style defined his masterpieces. In particular we can discover how his solitude and depression expressed themselves in his paintings. Through psycho-analytic biography it's possible to learn why van Gogh's development led to one of the most personal painters of his time both by using color and brushstroke as methods of expression.

Faculty Mentor: Dr. Toby Norris

John's Gospel and Jazz

Justine McElroy '11, Theology

A case study in the musical compilation of *Amazing Grace* and *Gospel John* is examined in its relation and revelation in reference to Gospel of John. Both the genre of jazz and the two songs have rich histories in evoking images related to John's Gospel. The current presentation will not only explore key themes and visualization of the Gospel evoked by the music but also the equalitarian and complex community behind the Gospel, the high Christology in the Gospel and triumph characteristic of the fourth Gospel reflected in the music and genre of jazz itself. In exploring the connection and mutual revelation between music and the Gospel, new understandings and appreciations of both are allowed to be built and developed. Music and the Gospel allow for the two evolving communities to coexist and communicate in a way that brings the current community of believers into a greater understanding of the Gospel through another sense.

Faculty Mentor: Sr. Ellen Guerin

Presentation Session III

Pope Innocent X: Power, Papacy, and Politics in Piazza Navona

Christina Acunzo '11, History

The Catholic Church has left its mark on Roman society throughout history, especially during the Baroque. Popes, particularly Innocent X, used their papal power to commission works of great artists and architects. This paper will explore Innocent X's use of ecclesiastical power to glorify his papal and familial name through the completion of Piazza Navona. It will show the immense influence papal power had over the famous artists and architects during this period. As cardinal, Giambattista Pamphili first commissioned the famous architects Peperelli and Rainaldi to expand the Pamphili Palace in the piazza with grandiose décor to represent their growing power. After becoming Pope Innocent X, he expanded Piazza Navona to represent his continual rise in power. Gianlorenzo Bernini constructed the Fountain of the Four Rivers to reflect the four corners of the world with symbols of the Pamphili family intertwined within a representation of the four known continents at the time. Finally, Innocent X commissioned Rainaldi and Borromini to renovate the Church of St. Agnes in Agony to represent the greatness of his pontificate. Pope Innocent gained immense power as pope and transferred this power into the arts in order to elevate his family's name in Roman society, which Piazza Navona exemplifies through the Pamphili Palace, The Fountain of the Four Rivers, and the Church of St. Agnes.

Faculty Mentor: Dr. Lance Lazar

Woman in Exile: Hannah Arendt in America

Brianna Murphy '12, History

Driven from Germany by the rising Nazi regime, Hitler's exiles included prominent figures in literature, the arts, and the social sciences. Many came to the United States to continue their careers. Some were able to find success; others were driven out by charges of socialism in the age

of McCarthy. The renowned political scientist Hannah Arendt was among the exiles who achieved much success after her move to America. Arendt was unique in that she was one of a few women exiles in this field, and her thought is still studied by political scientists today. Drawing largely from her correspondence with friend and colleague Mary McCarthy, my presentation will discuss the more personal effects of exile on Arendt's political thought and how her life as a female intellectual and exile differed from that of her male counterparts.

Faculty Mentor: Dr. Thomas Wheatland

The Theme of Role Reversal in the Gospel of Luke

Nicholas DiAntonio '12, Theology

The Gospel of Luke has been referred to as the "Gospel for the Poor" with its emphasis on issuing blessings and inspiring words to those suffering from the various hardships of life. Another title that could be used to describe Luke could be the "Gospel of Reversal" based on the fact that a sort of role-reversal between the rich and the poor takes place throughout much of the Gospel. This presentation will aim to discern the true reality of the poor in Luke as well as discuss the notion of role reversal.

Faculty Mentors: Rev. Richard Simpson & Dr. Ellen White

Arriving in America: The Struggle of School Aged Recently-Immigrated Children in the United States Today

Alexandra Shumway '11, Sociology

A striking influx of forced, free and impelled immigrants into Massachusetts has created a state of mass diversity, in which 1 in 7 residents are foreign-born. This shocking statistic has been cause for the creation of several programs geared towards social adjustment and English language development amongst new residents. The Worcester Public School, The James A. Caradonio New Citizens Center, aims to provide education for children and teens with gaps in their education of more than five years due to social, political, or economic circumstances in their country of origin. Within the walls of the small, generally-

obscure school, children and teens from more than 30 different countries, speaking more than 14 different languages, learn typical primary and secondary subjects in a manner that reflects an emphasis on English language development. This presentation will focus on common struggles faced by these students, which include social, economic, lingual, and familial issues, as well as more specific struggles faced by certain immigrant groups, including Iraqis and Haitians. The presentation will also include policy suggestions for lessening the plight of immigrant students, through educational and social school reform.

Faculty Mentor: Dr. Susan Perschbacher

Ecological Effects of a High White-Tailed Deer Population and Hunting as an Effective Control Measure

David Taddei '11, Natural Sciences

White-tailed deer are at one of their highest levels of population since America was settled. Lack of natural predation and decreased hunting have given rise to these high population levels. In areas of the United States where deer have almost no natural predators, like New England, hunting is the most effective method of population control. At first glance it may seem that a high deer count would be a good thing. To a wildlife viewer it may be, but from an ecological standpoint it is not. Our forests in New England are suffering because of the high deer populations. Forests are not able to successfully regrow because deer feed on saplings and other leafy plants that are close to the ground. A prime example of how a population of animals can affect forest ecology is Yellowstone National Park, where elk were causing high amounts of ecological damage due to their lack of predation. When wolves were reintroduced to the Yellowstone area, forests began to slowly rebound and began to look like they did in the early days of America. While the reintroduction of a natural predator in New England is unlikely due to the amount of public backlash it will receive, if deer populations are not controlled our ecological systems as a whole will suffer.

Faculty Mentor: Dr. James Hauri

Poster Session I

I-A. Genuine Progress in Massachusetts: Estimating the Genuine Progress Indicator (GPI) for the State, Counties, and Cities

Jeffrey Starr '12, Economics

The Genuine Progress Indicator (GPI) is an alternative measurement to Gross Domestic Product (GDP) of not just the economic well-being of a society, but social well-being as well. GDP simply refers to the market value of all goods and services produced within a society without taking into account the potential costs of certain products to the health of the area measured, while also not addressing certain beneficial non-monetary transactions. GPI attempts to correct this in order to get a more accurate portrayal of the health and well-being of a society, by estimating the worth, either negative or positive, of things overlooked. This study in particular set out to do this for the state of Massachusetts, and the counties and cities within, with the help of other studies done in other states and the nation as a whole.

Faculty Mentor: Dr. Thomas White

I-B. An Evaluation of Student-Oriented Organizational Citizenship Behavior in Academia

Michelle Barrows '11, Business Studies

Organizational citizenship behavior (OCB), also termed extra-role behavior, is defined as individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, the aggregate of which promotes the effective functioning of the organization. Recently, OCB research has grown, resulting in increased investigation and publication in the organizational behavior literature. Accumulating research in this area likely stems from empirical evidence suggesting that OCB can greatly enhance overall organizational effectiveness. The present study sought to examine the possible relationship between OCB and other variables of interest including undergraduate major, religious affiliation, gender, and undergraduate

year among current and recently graduated undergraduate students at Assumption College. The present study had a total of 490 respondents, all of whom completed an online survey and a demographic questionnaire. Survey data collected provided support for the hypothesis that females exert a greater willingness to engage in OCB than males. Data also supported the hypothesis that stronger religious affiliation results in a greater willingness to engage in OCB. Additionally, data supported the hypothesis that the higher the level of college completed, the higher the level of OCB was reported. Only the final hypothesis regarding undergraduate major did not yield significance. Overall, the present study added to the OCB literature indicating a positive relationship between OCB and gender, level of college completed, and religious affiliation in an academic setting. This research may lead to subsequent OCB research to be conducted at higher education institutions without religious affiliation and with a more diverse population.

Faculty Mentors: Dr. Cary LeBlanc & Dr. James Soldner

I-C. The Affects of Pim Kinase on Isotype Switching in B Cells

Stephanie Joy Bouley '12, Natural Sciences

The immune system's ability to target foreign pathogens relies heavily on the production of functionally distinct antibody isotypes produced through the process of class switch recombination (CSR). A key enzyme, AID, allows for this recombination, which must be induced and phosphorylated on serine at position 38 (S38). We hypothesize that this phosphorylation is mediated by Pim kinases. To experimentally address this hypothesis we examined isotype switching in purified B cells from Pim 1, 2 double knockout (DKO) mice by stimulating the B cells with activators and cytokines to stimulate CSR. We also collected stimulated B cells from wild type (WT) and Pim DKO mice to assay for AID expression and attempted to evaluate AID phosphorylation using a phospho-specific AID-S38 antibody. We found switching to IgG1 isotype was decreased in stimulated Pim DKO B cells relative to stimulated WT B cells. AID was induced in both WT and Pim DKO B cells stimulated to undergo CSR, showing Pim deficiencies do not impair AID expression.

We also found that Pim 2 kinase translocates to the nucleus in stimulated WT B cells where AID phosphorylation may occur, suggesting that Pim kinase could indeed be involved in AID phosphorylation required for CSR.

Faculty Mentors: Dr. Aisling Dugan & Dr. Robert Woodland (UMass)

I-D. Interactions Between Carbon Nanotubes and Liquid Crystals

Gajinder Hoonjan '12, Natural Sciences

Carbon Nanotubes (CNTs) are the centerpiece of the most important technological revolution after the industrialization of our society – Nanotechnology. They are small cylinders of carbon atoms, millions of times thinner than a human hair. Despite the microscopic size, they are the strongest thing known in nature. Because of their size, the carbon nanotubes are extremely difficult to handle. When mixed with liquid crystals (LCs) they can be manipulated in large quantities. We found that CNTs influence the properties of LCs, using less energy for operation of liquid crystal displays. They also change their liquid crystal and their crystal phases and influence the temperatures at which those phases are formed. We are looking for ways to explain the observed effects by using infrared spectroscopy. This technique provides information about the connections and interactions between the liquid crystal molecules and the atoms on the surface of the carbon nanotubes. Our results show that the 5CB LC and CNTs interact with their phenol rings and that the LCs induce charge on the nanotubes creating an induced dipole moment which explains faster switching times in liquid crystal display cells.

Faculty Mentor: Dr. Georgi Georgiev

I-E. The Effect of Eye Size and Target Sex on Attractiveness, Successfulness, and Persuasiveness Ratings

Michael Brede '11 & Nicole Marotto '11, Psychology

In this study, the effect of a target's sex and eye size on ratings of attractiveness, successfulness, and persuasiveness was assessed with a sample of 57 participants. Participants were students at a small, private

New England college. Participants were randomly assigned to view images of male and female targets with manipulated small eyes or large eyes. Participants were asked to rate how attractive, successful, and persuasive each target appeared to be on a Likert-type scale. Our analysis revealed that targets with large eyes rated higher on levels of attractiveness, successfulness, and persuasiveness. Male targets rated higher on levels of successfulness and persuasiveness; female targets rated higher on levels of attractiveness. A significant interaction based on eye size and target sex indicated that female targets with large eyes were rated significantly more attractive than female targets with small eyes. No significant difference was found between male targets with large or small eyes. Men and women with large eyes may be perceived as more persuasive because eye contact is associated with persuasiveness; large eyes may increase this perception. People with larger eyes may be seen as more attractive, and the more attractive individuals are, the more successful they are perceived by others.

Faculty Mentor: Dr. Maria Parmley

Presentation Session IV

Worcester Women's Oral History Project:

Interview with Dr. Ogretta McNeil

Megan Evangelista '13 & Katerina Reilly '14, History

We interviewed a woman of Worcester to show how everyday women have the most extraordinary stories. We will give a presentation on her life, and included in that, will be defining moments in her life that have shaped her, which we will relate to some of the important readings from our class.

Faculty Mentor: Dr. Carl Keyes

A Woman's Choice: Interview with Susan Strandberg

Savannah Harvey '12 & Nicole Smith '12, History

In collaboration with the Worcester Women's Oral History Project, an organization that aims at capturing and sharing the personal and historical memories of women in the broader Worcester area, we interviewed Susan Strandberg and created an oral history. The oral histories created by this project, with the help of multiple colleges in the Worcester Consortium, are used for scholarly research in the Arthur and Elizabeth Schlesinger Library on the History of Women in America at Harvard University. Sue Strandberg is a single woman who spent most of her childhood in North Brookfield, Massachusetts. She attended the University of Massachusetts – Amherst to earn her Bachelor's in psychology. She later earned her Master's in counseling psychology at Anna Maria College in Worcester, Massachusetts. The oral history interview with Sue revealed an ongoing dilemma for women in general: the struggle between joining the workforce and having a family. Sue's interview brought up very real concerns about choices in the lives of American women who face decisions regarding their careers and their family. Over the past century women have increasingly pursued a variety of occupations in the workforce, yet it is clear that societal expectations that privilege women's roles as domestic caregivers rather than as professionals are still very real and present a distinct dichotomy and difficult choices for many women.

Faculty Mentor: Dr. Carl Keyes

Finding the Regular Woman

Paula DeCosta '13 & Hannah-Lee Hilsman '13, History

The Worcester Women's Oral History Project is an organization committed to documenting, collecting, and communicating "the personal and historical memories of women throughout the broader Worcester community," (Worcester Women's Oral History Project Website). Through our Women's Studies course, Images of Women in America, we were able to work with this organization and conducted an oral history of Louise Clarke. Louise was born and raised in Worcester,

and continues to live and work in the city with her family. Through the four themes of work, education, health, and politics/community involvement, we were able to uncover information about Louise that was relevant to the course objectives. Our course strived to understand the experiences of women in the past, so that we may better understand the present and the ways in which we can shape the future. During her interview Louise stressed the importance of recording the story of the “regular woman” in the history of women being compiled today. Louise shared her feelings that history spends too much time studying the lives of extraordinary men, but fails to recognize the value of the everyday woman.

Faculty Mentors: Dr. Carl Keyes & Dr. Maryanne Leone

Government Disinformation in Vietnam

Matthew Gagliardi '11, History

The Vietnam War changed the way Americans trust the government. Through actions of President Lyndon B. Johnson, President John F. Kennedy, Secretary of State Robert S. McNamara, and Military General William Westmoreland, people no longer place the same trust in their government that previous generations have. Different events and actions by the United States government, including the role of Advisors in Vietnam, the Tonkin Gulf Incident and the usage of the media in Vietnam allowed each leader to change the true facts about Vietnam. Most often it was done to keep the American citizens from realizing that the United States was not winning the war. Each United States leader knew the importance of keeping the support of the American people from turning against them and the war effort. But over time different documents were released, most notably the *Pentagon Papers* leaked by Daniel Ellsberg, and it became very clear to the American people what exactly was happening in Vietnam.

Faculty Mentor: Dr. Lance Lazar

***In What Ways Have Aid and Trade
Shaped the Great Recession?***

Chris McDermott '11, Economics

Amongst the factors which shape a nation's economy, international trade and in some cases aid hold a certain significance. Trade in particular stands as the driving force behind multiple economies, ranging in spectrum from the Third World to global powers. Simultaneously, while more limited in scope, aid flows also carry considerable weight in promoting economic growth and development. Thus it seems reasonable to suspect that these two components may have helped to shape the manner in which the recent crisis spread and the shape it came to take. The following paper will therefore seek to investigate this further, both through a review of what work and research has already been done and an analysis of the data and information currently available.

Faculty Mentor: Dr. Smriti Rao

Poster Session II

II-A. Laptop Power Usage

Chris Fallago '11, Natural Sciences

The goal of this study is to determine power usage of several different brands of laptop computers in different states in order to first, determine the most efficient way to use the computer and second, determine the more efficient operating systems, and components. One topic that is consistently debated is whether or not the power supply uses energy when plugged into the wall outlet but not the laptop; this study will attempt to answer that question as well as others. Some other questions that will be addressed are the following: Should one let a laptop fully discharge before connecting it to the charger? Is there a difference in the power usage when the laptop is sleeping, awake, fully charged? Does charging an accessory like an iPad, iPod, or cell phone use more power? The power usage was determined using a Kill A Watt

electricity usage monitor. By determining the power usage characteristics of some common brands and models it will be possible to recommend simple changes that cumulatively could result in significant energy savings.

Faculty Mentor: Dr. James Hauri

II-B. Motivation and Test Anxiety and Their Relationship to Academic Achievement Among College Students

Grace Kennedy '11, Sarah Lyons '11 & Jessica Palladino '11, Psychology

This study investigated the relationships between test anxiety, motivation and academic achievement. Undergraduate students completed two questionnaires, one which addressed five different measures of motivation and test anxiety and one which measured levels of debilitating and facilitating anxiety. Students also self-reported their GPA, which was operationally defined as academic achievement. Correlation tests revealed that self-efficacy, a motivation component, was significantly correlated with academic achievement. In addition, facilitating test anxiety, debilitating test anxiety, and test anxiety were also significantly correlated to academic achievement. Moreover, two of the motivation measures, self-efficacy and control of learning beliefs, were significantly correlated with both facilitating and debilitating test anxiety. These findings suggest that students with higher self efficacy and lower debilitating test anxiety do better in academics. Suggestions are made for how future research might further investigate the relationship between test anxiety and motivation.

Faculty Mentor: Dr. Paula Fitzpatrick

II-C. A Preliminary Analysis of a Meditation-based Treatment Method for Chronic Migraines

Makenzie Tonelli '11, Psychology

As a self-regulatory practice, meditation has received a lot of attention as a treatment intervention for chronic pain. This introspective technique has been utilized, in conjunction with the gate control theory, to help chronic pain sufferers modulate their level of emotional

reactivity to pain, and ultimately provide them with the tools to control how intensely they experience their pain (Carson et al., 2005). The present study sought out to evaluate the effectiveness of a meditation-based approach to treating chronic migraines, a condition affecting 13% of the United States population, per annum (Lipton, Stewart, Diamond, Diamond & Reed, 2007). Participants (N=22) were given 4 weeks of a meditation-based treatment, where subjects learned a strategy to regulate the negative emotionality associated with both triggering the onset of and existing simultaneously with migraine episodes, which was predicted to alleviate their symptoms. Herein a preliminary analysis of the data will be conducted to investigate the effectiveness of this treatment as an immediate intervention, by comparing pre- and post-treatment ratings for pain, tension, and anger across all 4 weeks. Additional analyses will be done to determine to what extent variations in pain can be predicted by negative affect, specifically tension and anger.

Faculty Mentor: Dr. Sarah Cavanagh

II-D. Art Therapy: Does Form Matter?

Mona Al-Abadi '11, Celia Fox '11 & Jillian Martucci '11, Psychology

Symptoms of anxiety were examined in the context of expressive arts interventions. Anxiety levels in undergraduate students were measured in response to different expressive arts therapies including visual journaling, mandala coloring, and still life drawing (control group). There was no main effect of intervention technique; however there was a main effect of time of testing. Clear changes in anxiety levels were evident during baseline, post-anxiety induction, and post intervention measures. These findings expand on past research by providing support for the use of expressive arts therapy interventions to alleviate anxiety symptoms.

Faculty Mentor: Dr. Paula Fitzpatrick

II-E. Sensory Processing Relates to Infant Attachment

Robert DiGiammarino '12, Psychology

Sensory processing relates to attachment problems in infants with sensory regulatory disorder (DeGangi, 2000). Other researchers have found a link between sensory sensitivity and relationship anxiety (Liss, Timmel, Baxley, & Killingsworth, 2005). The purpose of our study was to expand these adult findings with normally developing infants. Sensory processing of the mother was also assessed as a predictor of the attachment relationship. The method involved assessing parent-child interactions and sensorimotor/communication skills of 20 one-year-old infants. Trained observers performed the Attachment Q-Sort to assess security and dependency (Waters, 1987), and created scores for interaction with mother and others (Posada, Waters, Crowell, & Keng-Ling, 1995). Additionally, mothers completed the Sensory Profile (Dunn, 2002) to measure sensory processing styles and types. Results demonstrate that high mother and infant thresholds may contribute to low infant security, also correlated with general stimulation processing difficulty. Infants of sensory avoidant mothers had lower security scores. Infant sensation seeking predicts dependency. Only infant variables predicted proximity to mother. Sensory sensitivity and sensation seeking infants have difficulty monitoring mother location. These results illustrate how sensory processing influences infant attachment and can be used to form intervention strategies fostering security.

Faculty Mentor: Dr. Maria Kalpidou

II-F. Fathers' Responsiveness in Relation to Child's Temperament and Fathers' Relationship with Their Parents

Jacquelyn Nardelli '11, Psychology

In this research project, I am exploring the predictive value of the child's temperament and the father's bonding with his own parents. In order to determine the level of fathers' responsiveness, I will be coding videotaped interactions between fathers and their 12 month old infants. From the coded responsive behaviors, I will investigate the links

of the child's temperament and the father's relationship with his parents, which are both measured by questionnaires. Through researching various studies on fathers-infants I have found factors of the father-infant interaction. Fathers are as sensitive as mothers are and form secure attachments to their infants. However, father-infant interactions are different from mother-infant interactions. Fathers tend to play more than mothers do and engage in less caregiving behaviors. The factors that predict the degree of the father's responsiveness include amount of involvement and marital satisfactions. Fathers who spend more time with their infants and have the support of their spouse tend to be more responsive parents. This research will add to the growing research of father-infant interaction and hopefully display the integral role fathers play in child development.

Faculty Mentor: Dr. Maria Kalpidou

II-G. Women Advertisers in Eighteenth Century Philadelphia

Marybeth Mulligan '12, History

Early American newspapers devoted a significant amount of space to, and made a large portion of their profit from, advertisements for goods and services. Women in eighteenth century Philadelphia advertised their services as shopkeepers, booksellers, milliners, schoolmistresses, dance instructors, cooks, mantua makers, upholsterers, seamstresses, embroiderers, midwives, physicians, tobacconists, and engravers. The poster features a selection of advertisements systematically researched in eighteenth century Philadelphia newspapers using the American Antiquarian Society's bound volumes and digitized collections. The advertisements are evidence of the complex and nuanced role of women in eighteenth-century America; some of the women advertisers clearly inherited their husband's trade upon his death, some advertised domestic services such as sewing or midwifery that were appropriate and expected for eighteenth century women, but for many of the women advertisers, how they emerged into the public sphere as businesswomen is not clear. Their presence alongside men who placed

advertisements in newspapers suggests that for some women, their place in society was not necessarily limited to the roles of housewife or mother.

Faculty Mentor: Dr. Carl Keyes

Notes





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*Landy Johnson and James Lang
Co-chairs, Undergraduate Symposium Planning Committee*

Undergraduate Symposium Planning Committee

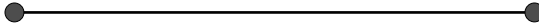
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Dr. Landy Johnson

Director of Grant Development and
Coordinator of Undergraduate Research

Dr. James Lang

English Dept. & Honors Program



Dr. Georgi Georgiev

Department of Natural Sciences

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