

Bates College

2004 – 2005 Honors Theses Abstracts

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* Denotes a combined thesis

ANTHROPOLOGY

Jessica T. Celentano

Advisor: Elizabeth A. Eames

Giving Credit Where Credit is Due: Microfinance, Economic Education, and Entrepreneurship Among Women in Senegal

In recent years, development experts, government officials, international aid donors, and scholars have invested considerable time and resources into promoting microcredit schemes. Success stories from around the world demonstrate the potential of providing small sums of money to low-income women as an empowering and effective poverty alleviation strategy. Support from the World Bank and International Monetary Fund ensures a dramatic increase in funding for microfinance institutions within the next few years. Yet a growing number of researchers question this enthusiasm, arguing that microfinance programs divert attention and resources from more effective means of poverty eradication. Exploring such criticisms by way of six case studies of Senegalese female entrepreneurs, this thesis demonstrates the necessity of cultural-specificity and gender-sensitivity in order for the microfinance industry to circumvent past hegemonic development praxis and reach its anticipated potential.

Margaret K. Haskell

Advisor: Steven E. G. Kemper

When a Ritual is Textualized: A Look at the Various Depictions of the *Palio* of Siena

This thesis examines the various ways that Siena's *Palio* is depicted in text form. The *Palio* is a horse race that occurs biannually in Siena and holds cultural significance because the outcome of the race shapes social, political, and economical relationships among the townspeople. Over the last two decades there has been a drastic increase in "heritage tourism;" the popularity of the *Palio* has therefore expanded into a huge event with different audiences. Media coverage, including books, magazines, and videos, has shaped the way in which spectators view the *Palio*. This thesis reviews what happens to a ritual when it is textualized, focusing on how the *Palio* is portrayed in both "tourist guidebooks" and "locally authorized" versions. It uncovers the similarities and differences in information provided and claims made. It utilizes a multifaceted approach, incorporating published primary source materials, field notes, tourist guidebooks, locally authorized guidebooks and interviews with locals and tourists who attended the *Palio*. I argue that the tourist gaze is constructed through the information written in each book, resulting in the experience and presentation of multiple *Palii* for spectators.

Rachel E. Silver

Advisor: Patricia S. Buck

Negotiating New Lives: Using Somali Refugee Women's Participation in an ESOL Program to Re-envision the Purposes of Schooling in Transnational Times

The school as a symbolic site serves multiple, yet often contradictory purposes. According to Levinson and Holland (1996), schools maintain unique, yet "paradoxical potentialities" to both foster student empowerment and meritocratic opportunity, as well as reproduce structural inequalities. This ethnographic study investigates the meaning a group of Somali refugee women attach to learning at a local adult education center in an effort to create dialogue around the role schooling plays in processes of cultural belonging. I seek to understand how, as agents negotiating the structural forces at work in school, the women construct understandings of the experience. How can they echo, resist, or stand tangential to the purposes ascribed to education by the institution's personnel? Framed by a review of critical educational theory's analyses of school and contextualized in the women's journeys to Maine, my thesis builds on three years of teaching and participant-observation at the local educational center. I contend that a deepened understanding of the women's experiences of schooling, particularly as they articulate with the process of transnational migration, can enrich national discussion about what the purposes of education should be.

BIOLOGICAL CHEMISTRY

Christina A. Austin

Advisor: Paula J. Schlax

Translational Regulation of *Escherichia coli* RpoS by mRNA Secondary Structure

The *rpoS* mRNA encodes a transcription factor known as the "master regulator" of the stress response in *Escherichia coli*, σ^S . Translational regulation of cellular σ^S concentrations is largely dependent upon the secondary structure of the *rpoS* mRNA. It is hypothesized that under standard physiological conditions, the mRNA is folded into an "inactive" secondary structure, which occludes

the Ribosome Binding Site (RBS). In response to environmental stress, regulatory factors like DsrA (a small non-coding RNA) stabilize an "active" mRNA structure, allowing for ribosome binding. In this study, ribonuclease structure mapping of *rpoS* indicates that the active and inactive structures have distinct conformations, especially in the area surrounding the RBS. Furthermore, the 30S ribosomal subunit and a DsrA analog are found to stabilize active secondary structures. Recent work demonstrated that the ribosomal protein S1, known to modify RNA structure, binds *rpoS* and DsrA independently. Although our data indicate that neither *rpoS* nor DsrA undergo structural shifts when bound to S1, we have shown an increase in the rate of formation of a translationally active complex on *rpoS* upon S1 binding. It is consequently proposed that both S1 and DsrA regulate translation by stabilizing an active conformation of *rpoS*.

Matthew R. Lawler

Advisor: T. Glen Lawson

An Evaluation of the Binding of Encephalomyocarditis Virus 3C and 3CD Proteins to 5'-Untranslated Region Viral RNA

Little is known about the mechanism of viral RNA synthesis in picornavirus-infected cells, and most of what is currently known is restricted to poliovirus. This project advances research into the biochemistry of encephalomyocarditis virus (EMCV) RNA replication, expands the knowledge base of picornavirus replication, and probes for the existence of novel regulatory processes. Because analogous proteins from other picornaviruses have been shown to bind RNA and because this behavior is known to be a crucial event in poliovirus RNA replication, demonstrating specific RNA binding by these EMCV proteins is highly valuable in elucidating the mechanism of EMCV RNA synthesis in infected cells. My goals are accomplished by using wild type and mutated EMCV proteins expressed from cloned genes in *E. coli* cells and purified using a histidine residue tagging ("his-tag") affinity procedure. Purified proteins are then incubated with ³²P radiolabelled RNA. Binding affinity is analyzed using acrylamide gel mobility shift assays to determine whether the binding of purified EMCV 3C and 3CD proteins is specific to viral 5'-untranslated region RNA molecules, and whether the binding affinity is different for the two viral proteins.

BIOLOGY

Kelton W. McMahon

Advisor: William G. Ambrose, Jr.

Impacts of a Changing Food Supply on Arctic Benthos: Digestibility of Ice Algae and Phytoplankton

Climate change-mediated reductions in Arctic sea ice may decrease ice algae and increase phytoplankton. It is thought that this change in food supply will not negatively impact the benthos because ice algae is assumed to be a lower quality food source than phytoplankton. My thesis, therefore, assesses the digestibility (i.e., food quality) of ice algae and phytoplankton by the Arctic benthos. Individual organisms and sediment cores collected in Ny Ålesund, Svalbard (79°N, 11°E), were fed ice algae, phytoplankton or ^{13}C -enriched ice algae for 19-32 days. Sediment chlorophyll-a concentrations were elevated by 70% in the food-addition cores compared to control at 12 hours, but declined to similar levels in all treatments by 19 days. Respiration rates in the ice algae-treatments were significantly higher (1.4x) than those in other treatments within 12 hours of food addition. In the ice algae-treatment, taxa from three different phyla (*Mollusca*, *Annelida* and *Sipuncula*) exhibited significant enrichment in $\delta^{13}\text{C}$ values compared to control. There were, however, species-specific differences in the degree of assimilation of ^{13}C -enriched ice algae. These experiments show that ice algae is readily consumed and assimilated into biomass by some key species, making it a valuable component of the Arctic benthic food web.

CHEMISTRY

Erin M. Bertrand

Advisor: Rachel N. Austin

Substrate-based Mechanistic Inquiries into Alkane Hydroxylation by AlkB in *Pseudomonas putida* GPo1 and Uncharacterized Alkane Hydroxylases in Bacteria from Deep Sea Hydrothermal Vents

The non-heme diiron alkane monooxygenase AlkB is the dominant alkane hydroxylase in pristine as well as oil-contaminated environments. In these mechanistic studies, diagnostic substrates have been used to characterize the reaction mechanism of AlkB. AlkB catalyzes the hydroxylation of the diagnostic substrate bicyclo[4.1.0]heptane (norcarane), yielding a distribution of products consistent with the presence of a substrate-based radical intermediate and therefore an "oxygen rebound" hydroxylation mechanism. Experiments using AlkB from *Pseudomonas putida* GPo1 in whole cells have shown that the radical lifetime varies with experimental conditions. Experiments with higher substrate concentrations yield a shorter radical lifetime, while experiments with lower substrate concentrations yield a longer radical lifetime. These results point to an extraordinarily long-lived substrate-based radical and restricted active site for AlkB. They provide mechanistic and structural information about AlkB in *P. putida* GPo1. These substrate-based mechanistic inquiries have been extended to survey uncharacterized alkane monooxygenases in bacteria from a variety of environments, including deep-sea hydrothermal vents. The results from these experiments have been used to characterize the mechanism of hydroxylation employed by these organisms and their alkane monooxygenases as "AlkB-like."

Christopher J. Richards

Advisor: Thomas J. Wenzel

Calixarenes and Calixresorcarenes as Chiral Solvating Agents in NMR Spectroscopy

A family of water-soluble L-amino acid derivatized sulfonated calix[4]resorcarenes was developed, and their effectiveness as chiral solvating agents (CSAs) in nuclear magnetic resonance (NMR) spectroscopy was determined. The L-proline derivatized member of this family was found to be a very effective CSA for water-soluble bicyclic aromatic substrates, inducing upfield NMR shifts as great as 1 ppm. The amounts of enantiomeric discrimination observed with the L-proline compound in this study represent some of the largest chiral discrimination observed with any CSA in any system. Other members of this family were also tested as CSAs with varying degrees of success. The effectiveness of the paramagnetic lanthanide shift reagents europium, dysprosium, and praseodymium (as their nitrate and chloride salts) in inducing greater enantiomeric discrimination in the NMR spectra was also investigated. The ability to effectively discriminate the enantiomers of water-soluble chiral compounds represents a potentially useful advance in the ability to create optically pure pharmaceuticals.

CLASSICAL AND MEDIEVAL STUDIES

Sarah E. Jessee

Advisor: Thomas A. Hayward

Dramatic Dissent: Seneca's *Hercules Furens* as a Subversive Political Text

Roman tragedy, of which only Seneca's work survives in full, has often been discounted, overshadowed by its Greek counterpart. Far from a poor imitation of Greek models, Seneca's drama speaks to Roman ideals and reveals Roman perspectives that are specific to his contemporary historical context. Close to the hub of power in the politically volatile and inherently theatrical Neronian Empire, Seneca was experienced in the art of allusion and the skill of subversion. He employed abilities in his *Hercules Furens*, which I argue to be an intentionally ambiguous commentary on the psychology of human madness. It is under tyrants that literary freedom is most threatened, but from these constraints some of the most impressive literature emerges. This thesis examines *Hercules Furens* in light of Stoic theory, Roman specificity, and rhetorical style, ultimately discussing the play as a carefully crafted illumination of the elite's sentiments in the Age of Nero.

ECONOMICS

Siarhei Balshakou

Advisor: Carl R. Schwinn

An Empirical Examination of Rates of Return for the Maine Public Electric Utilities Industry

Based on financial data for the major Maine utilities over the last 50 years, this thesis examines whether the Public Utilities Commission (PUC), through the regulatory process, allows utilities to earn the socially efficient opportunity cost of capital. The minimum return required to attract capital to the regulated utility is the opportunity cost of capital. This thesis tests two hypotheses. The first is that the maximum rate of return set by the PUC, defined as the accounting rate of return, equals the economic rate of return. The accounting return is the ratio of Net Income to the Book Value of Investment in

the same period. The economic return equates the value of the initial investment to the present value of the subsequent cash flows, and is the proper measure of a utility's ex post performance. The second hypothesis is that the economic return equals the opportunity cost of capital. Both hypotheses may be rejected, since failure of the PUC to achieve parity between the economic rate of return and the opportunity cost of capital entails a socially inefficient use of capital.

Andrius Stasiunas

Advisor: Michael P. Murray

eBay: Estimating the Effect of Seller's Reputation on Auction Winner's Gain

eBay hosts an enormous number of transactions each day. Buyers and sellers on eBay know very little about one another, and because bidders cannot directly examine auctioned goods, they must assess the reliability of a seller and bear a risk that reduces their expected gains. This thesis empirically examines how uncertainty affects the market transaction price and the auction winner's gains. It also attempts to discover empirical evidence of the economic welfare loss caused by information asymmetries in the market.

ENGLISH

Jocelyn N. Davies

Advisor: Carole Anne Taylor

"This Kind of Logic is Merely Formal": The Political Absurd in Edward Albee and Vaclav Havel

Vaclav Havel, a well-known Czech dissident who eventually became the first democratic president of the Czech Republic, wrote plays considered distinguished examples of Europe's political Theater of the Absurd. Yet Edward Albee, a well-known American playwright also considered a dramatist belonging to the Theater of the Absurd, has rarely been interpreted as a political playwright, despite the many qualities he has in common with Havel. This thesis undertakes a comparative analysis of how each playwright explores the mechanics of power in such plays as Havel's *The Garden Party* and

The Memorandum and Albee's *The American Dream* and *Tiny Alice*, productions that both target overwhelming constructions of power and imply the possibility of potential forms of resistance. The social theory of Michel Foucault, the comedic theory of Mikhail Bakhtin, and the dramatic theory of Bertoldt Brecht inform the analysis of these plays' dramatic focus on hierarchical systems of power and the characters entrapped and struggling within them. Ultimately, it argues that Havel's plays have relevance to Anglo-American theatrical traditions, and that productions of Albee should recognize the political character of his absurd theatrical worlds.

Naama Zohn

Advisor: Sanford A. Freedman

Marlow's Kings: Conceiving *Tamburlaine* and *Edward II*

The portrait of Christopher Marlowe, like that of any author, changes with the years. As time and tastes alter, so do conceptions of what an author and his works signify. Indeed, collected literary criticism reveals much not only about its overt subject, but also about its authors. Tracing the lines along which Marlovian criticism has progressed uncovers the development of these commenting cultures themselves. Along with an analysis of the analysts, this work examines *Edward II* and *Tamburlaine* as emblems of Marlowe's work in relation to his identity as an Elizabethan. It explores both what Elizabethan intellectuals thought of their era as well as what subsequent generations have thought about them, through the specific lens of Marlowe's works.

ENVIRONMENTAL STUDIES

Erin M. Bertrand - see Chemistry

Eben P. Sypitkowski

Advisor: William G. Ambrose, Jr.

**Sediment Disturbance and the Bloodworm (*Glycera dibranchiata*) Fishery in Maine:
Sediment Disturbance from Bloodworm Harvesting and Estimates of Bloodworm Stocks
and Their Relationship with Environmental Variability**

While the effects of commercial harvesting of some marine intertidal species have been documented as they pertain to infaunal community structure and function, little is known about the impact of bloodworm (*Glycera dibranchiata*) digging on intertidal Maine mudflats. This is in part due to the lack of data on frequency and extent of sediment disturbance by diggers. I collect data on the temporal and spatial patterns of worm digging using two methods: surveying entire mudflats and observing harvesting behavior of individual diggers. I use aerial photography every 15 to 20 days for a 6-month period (July 2004 to January 2005) to monitor sediment disturbance on 7 flats in mid-coast Maine. In addition, I observe and interview individual diggers on a sporadic basis during that same time period to quantify the amount of sediment overturned. Using these data, we calculate catch per unit effort. Preliminary results suggest that the intensity of worm digging changes seasonally, probably in response to changing abundances of worms. An average digger turns over about 90 m²/hour, digs 2 hours/tide and harvests 145 worms/hour. Results suggest that bloodworm flats are subject to high levels of disturbance that likely influence the abundance and distribution of non-target species.

Meghan C. Thornton

Advisor: Marcia A. Makris

An Analysis of Kindergarten Writing Curricula through a Developmental Lens

In the midst of a national and local climate of accountability in public schools, tension has arisen regarding the contradiction between developmental and standards-based approaches to kindergarten curricula. Some teachers believe that kindergarten curriculums should be developmentally based while others believe that standards-based lessons are effective teaching tools. Dialogue around this topic is further complicated by the reality of the limited amount of daily classroom hours. This year, certain elementary schools in Lewiston, Maine, are developing and implementing newly established full-day kindergarten programs. Based upon research conducted in two of those classrooms, this thesis uses interviews with teachers and extensive classroom observations to analyze whether the increase in class hours allows for the kindergarten teachers to implement more developmentally-based lessons in conjunction with the mandatory standards-based writing curriculum. Furthermore, case studies of students at various developmental levels in writing examine whether or not individual needs of the students are being met through the curriculum being taught. I also investigate a developmentally appropriate group writing process known as "interactive" writing and detail the results of three interactive writing curricula implemented in classrooms. This leads to a discussion of results and suggestions regarding school- and classroom-based reform.

FRENCH

Michelle Gomperts

Advisor: Kirk D. Read

La Séparation de la Mosquée et de l'État: Pour Dévoiler la Nouvelle Laïcité Française

This thesis argues that contemporary application of the principle of secularism in France does not match its original intentions. Re-conceptualization of secularism is partly in response to and disproportionately affects the Muslim minority living in France. In particular, this new secularism is manifested in the March 15, 2004, law that prohibits conspicuous religious symbols in schools. This thesis examines the original 1905 law of secularism and explores its origins and intentions. It then turns to the context of Muslim immigration surrounding the introduction of the law against "*signes ostentatoires*." Research demonstrates the complexities of the Muslim veil, which has become the rallying point of the debate, as it is the most visible and contested religious symbol in France. This thesis concludes by examining implications of the new law and its effect on isolation and assimilation of the French Muslim community.

Genevieve O. Waite

Advisor: Richard C. Williamson

Plus d'Américains en France? Les Défis Sociaux et Economiques de l'Industrie Touristique en France au XXIème Siècle

This thesis examines the tourist industry in France, from its political and social structures to its nationwide historical and economic implications. Examining the role of foreign tourists in France, specifically Americans, I explain why and how France has come to be known as the number one "receptor" country for tourists in the world. Specifically, I observe the relevance of American tourists in France, why Americans come to France, their importance to the tourist industry and how French and American attitudes shape this tourism. In order to study this phenomenon closely, I focus on tourism in one particular city: Aix-en-Provence. This part of the study involves numerous surveys conducted in English and French, directed toward American tourists and French citizens, posing qualitative questions. I attempt to discover how Americans in France have been affected by renewed anti-French sentiment in the United States after 9/11/2001 and how much tourism in France has suffered from the

loss of American tourists. Surveys of French citizens, moreover, examine how the French have reacted towards American tourists since the war in Iraq.

GEOLOGY

Evan S. Ackerman

Advisor: Gene A. Clough

Volumetric Analysis of Martian Rampart Craters

The morphology of ejecta blankets surrounding many Martian impact craters exhibits a lobate structure with pronounced distal ridges bordering the ejecta facies. These have been termed "rampart" craters. The specific process that emplaces this type of ejecta is uncertain, but may be some combination of a subsurface volatile component (liquid water) and the low atmospheric pressure on Mars. Craters can provide a valuable tool to determine surface and subsurface properties, but the mechanics of their formation must first be understood. The purpose of this thesis is to use ejecta volumes in comparison with estimated transient cavity volumes to determine whether a volatile component is present during ejecta emplacement. Approximately 120 craters on the Lunae Planum geologic region of Mars were measured, using a combination of digital image mosaics and laser altimetry data. Preliminary data analysis shows ejecta volume to cavity volume ratios ranging from 0.3 to 1.5. The data is corrected to account for transient cavity volumes and ejecta bulking due to fragmentation. Based on these corrections, it is possible to use the transient cavity volume to ejecta volume ratio to estimate how much, if any, volatile content would be required to create the observed ejecta volumes.

Charles I. Rodda

Advisor: J. Dykstra Eusden, Jr.

Early and Late Acadian Strain Partitioning: L1 Lineation and F4 Folding; Mount Madison, New Hampshire

Of the many phases of deformation recognized in the Presidential Mountain Range, D1, characterized by isoclinal, east vergent nappes with a hinge-parallel pseudoandalousite mineral lineation (L1) and D4,

defined by various scales of asymmetric folding, are the most ubiquitous deformations seen. A contoured L1 strain map was produced using a running bin average method for strike/dip measurements at 42 localities. In conjunction with schist/quartzite data reflecting bulk rock rheology, it appears that L1 strain is highest in stratigraphic layers located primarily in thinly bedded units. D4 shortening calculations were done by comparing folded line lengths to straight line lengths through the folds trains. Fold trains for 30 2–10 m long outcrops, one 2.1 km long cross section, and 13 thin sections at the microscale were done. Average outcrop scale shortening is 16.5% and average microscale shortening is 12.2%. Outcrop scale fold shortening appears to be closely related to structural position, with higher degrees of shortening coinciding with macroscale fold hinges. An overall shortening estimate will be presented for the Mount Madison field area. This study represents an ongoing effort to quantify early and late Acadian strain in the Presidential Mountain Range.

Alexander J. Verhave

Advisor: J. Dykstra Eusden, Jr.

**Evidence for Left Lateral Shear Along the Eastern Contact of the Waldoboro Pluton,
Muscongus Bay, Maine**

Muscongus Bay, Maine, represents an area of complex geologic and tectonic history. Effects of successive orogenic events are increasingly intricate and overprint one another, with evidence of the area's left lateral shear first being noted by W. Sidle (1991). Fieldwork conducted during summer 2004 as part of a NSF Research Experience for Undergraduates grant confirmed the presence of left lateral shear on Harbor and Black Islands in Muscongus Bay through use of precision GPS survey equipment, georeferenced digital photo-mosaics and GIS digital mapping. It is evidenced by numerous kinematic indicators and can be categorized into three main deformation stages. First, rotation of originally orthogonal granite intrusions with an average gamma value of 2.07 and intense folding and shortening of granite intrusions averaging -55.27% shortening in the S3 direction occurred during a ductile phase. Second, brittle-ductile extension and boudinage of granites averaged 21.08% extension in the S1 direction. Finally, offsets up to 10.6 meters are visible due to late stage brittle faulting that generated a layer of parallel Pseudotachylyte seams. This thesis seeks to determine the extent of tectonic interactions between this fault zone and other major faults in the region, including the Norumbega and Sennebec Pond Faults.

HISTORY

Joel D. Anderson

Advisor: Michael E. Jones

Medieval Religious Attitudes toward the Black Death: Clement VI and the Flagellants

This thesis examines the manner in which medieval people understood and responded to one of the greatest disasters in human history: the European Black Death of 1347-1351. The prevailing understanding of plague was that it was God's punishment for the sins of humanity. However, I argue that medieval efforts to describe the plague as part of a specific divine plan met with hesitation and denial. After defending this contention, I focus on the conceptions of and reactions to the Black Death, exhibited by the flagellant movement and the Pope. The flagellants were groups of men who traveled from town to town, scourging their backs with whips in front of large crowds. Although this ritual seems brutally excessive, I assert that the flagellants were not attempting to "pursue the millennium." Instead, their straightforward intention was to convince God to call off the plague by performing collective penance. The power of this idea is evidenced by Pope Clement VI's participation in flagellant-like processions in 1348. Yet in 1349, Clement condemned the flagellants. I suggest that Clement's changing and multifaceted response was a reflection of many of the fundamental medieval understandings of the Black Death.

Gary M. Dzen

Advisor: Michael E. Jones

Myths, Genes and Pottery: An Assessment of Cultural Identity Through Fifth-Century Anglo-Saxon Migrations into Britain

Cultural identity is a strong part of every nation's history. The people of England have identified themselves with the Anglo-Saxon culture since the sixth-century C.E., and also claim biological descent from that continental lineage. While the transition from British to Anglo-Saxon culture in England has never been in doubt, details of that transition are in question. The fourth, fifth, and sixth centuries have often been coined the "Dark Ages" of British history because there are few reliable texts concerning this era. Due to difficulties in interpreting the works of Gildas and Bede, scholars have turned to archaeology for help in characterizing the original migrations that brought Anglo-Saxon culture to England.

Originally it was thought that a large-scale movement of continental people must have accompanied the influx of Anglo-Saxon culture into Britain to replace the native population. Now, however, based on historical, archaeological, and newly discovered genetic evidence, the pendulum has swung to the other side for many scholars, who believe the native Britons may have adopted the culture of a small Anglo-Saxon group of elites. It is this theory that I support based on the literary, archaeological, and, particularly, the genetic ev

Lawrence J. Handerhan

Advisor: Hilmar L. Jensen III

Separate but Related: The Influence of the Civil Rights Movement on the Formation of the Gay Rights Movement in Twentieth-Century America

Recent controversy over gay marriage in the United States has split the black community over the definition of civil rights. As a contribution to reconciling the divide, this thesis examines how the civil rights movement contributed to the creation, ideology, and structure of the gay rights movement in twentieth-century America. I argue that, in the 1950s, the homophile movement expanded on the black minority-rights rationale and adopted a similar assimilationist platform in order to construct a community identity comprehensible to the greater public. In the 1960s, gay men and lesbians were a crucial part of the civil rights struggle, and successfully mobilized the growing homosexual community through civil-rights-inspired direct-action organization; however, even visionaries like Martin Luther King Jr.'s advisor, Bayard Rustin, were consistently marginalized by the black community. I believe these two factors constitute important and overlooked facilitators to the Stonewall Rebellion—the uprising considered the ignition point of modern gay activism—and decisively shaped the gay rights movement when it became institutionalized in the 1970s. Finally, I briefly consider the civil rights movement's continued pertinence to the quest for gay rights in the twenty-first century.

Andrew T. Jarboe

Advisor: Robert C. Williams

Gender and the Perpetrators of Genocide: How Gender Mattered to the Nazis during the Holocaust

Historian Joan Ringelheim notes that because of the view that every Jew was a victim of the Holocaust, most perspectives on the Holocaust have been gender neutral. While Ringelheim concerns

herself largely with the role gender played in the suffering of Jewish men and women, I investigate the flip side of the coin and pose the question: Did the gender of Jewish victims matter to perpetrators of the Holocaust? Finding the answer to be affirmative, I then ask: How did the gender of Jewish victims matter to the Nazis? Through analysis of Nazi documents—both official orders and memoirs—as well as the memoirs and testimonies of Jewish survivors, I contend that Jewish men and women fit differently into Nazi policy and ideology over the course of the Second World War. In the early years of the Holocaust, Jewish men were more likely to be targeted for death than Jewish women. By the end of the war, Jewish women and children were more likely to be targeted for death than Jewish men.

Timothy W. Larson

Advisor: Margaret S. Creighton

Faith by Their Works: The Progressive Tradition at Bates College from 1855 to 1877

Shortly after enrolling at Bates College in September 2001, I began surfing the school's website in an attempt to discover more about the community I had entered. I eventually discovered a brief synopsis of the College's history, asserting that "Bates was founded in 1855 by Maine abolitionists, and Bates graduates have always included men and women from diverse racial, ethnic, and religious backgrounds." While reflecting contemporary socio-diversity, this statement also implies that Bates has a long tradition of egalitarian values, with little deviation from those core progressive beliefs. This thesis is a deeper examination of the statement about Bates' early history, in which I evaluate the depth of Bates College's progressiveness from 1855 to 1877 (the end of Reconstruction) through the lens of race, gender, and class. In order to accomplish this task, I attempt to determine the values and aspirations of the founders, faculty and students, and then compare and contrast Bates to other institutions and the intellectual mainstream of the period.

Laura W. McConaghy

Advisor: Joseph M. Hall, Jr.

Chiloé's Salmon Production: An Exploration of Globalization's Local Impacts

As the world becomes increasingly intertwined economically, politically, socially, and environmentally, it is important to examine the impacts of this new interconnectedness. Many praise globalization, but for countless developing countries a "new world model" has not brought the promised

prosperity. Instead, the masses face growing disparities in wealth and further marginalization from their weakening governments. This thesis explores the impacts of globalization at the local level through a case study of the impact of the salmon industry in the archipelago of Chiloé in southern Chile. Chiloé's traditional economy was based on small-scale sustainable farming and fishing that relied heavily on community efforts. However, the introduction of the salmon industry greatly altered the face of this region as Chile has grown to become one of the world's leading salmon producers. Local history reveals the sweeping impacts of the economically dominant multinational corporations, and I contrast the commonly presented corporate perspective with interviews, firsthand observations and the work of local historians. I argue that despite the benefits espoused by globalization proponents, environmental, social, and economic impacts of the salmon industry undermine the sustainability of this community.

Eric Stanculescu

Advisor: Dennis Graffin

The Paradoxical Visual Apotheosis of Ernesto "Che" Guevara

On March 5, 1960, Cuban photographer Alberto Díaz "Korda" captured the now famous photograph of revolutionary icon Ernesto "Che" Guevara in Havana. The image circled the globe at a tumultuous time marked by independence movements and divided by the Cold War. *El Che* became an inspiration to international progressive movements and emblematic of Latin American revolutionary struggles. Following his 1967 assassination by the Central Intelligence Agency in Bolivia, Che's figure has been elevated from an icon of global resistance to a cult symbol. He is featured on monuments in Cuba, on banners and t-shirts throughout the industrialized world, and venerated as a saint by many of the dispossessed in Latin America and around the world. Tracing Che's footsteps back to Cuba and the region of Las Villas, this thesis explores contemporary interpretations of Che: his commodification, glorification, and mythification as a historical figure and an immortal icon of the present. My discussion is framed by one fundamental question: Did the man make the image, or did the image make the man?

Darcy L. York

Advisor: Michael E. Jones

Boudicca: Representations and Perceptions throughout History

British warrior queen Boudicca led one of the largest revolts ever staged against the Roman Empire. When her husband Prasutagus died, his will left half his lands to the Emperor, and half to be shared between his two daughters. Boudicca resisted confiscation of her people's lands, and the Romans had her flogged while her daughters were raped. These offenses, among other complaints against the conquering nation, united the British tribes in their rebellion. The phrase, "Hell hath no fury like a woman scorned," may seem fitting, as this event led to an estimated 70,000 Roman deaths. Three cities were completely destroyed before the Romans defeated Boudicca and her army in 61 C.E. Since then, Boudicca has been presented to the public in varying forms. This thesis examines Roman portrayals of Boudicca. I then delve into her constructed image over time, and her transformation from a villain to her role as a British heroine, examining representations in art, film, propaganda, and music. From Renaissance engravings to a heavy metal band named Boudicca from Australia, the warrior queen has undergone changes that have adapted her to audiences for nearly two millennia.

Emily E. Zukauskas

Advisor: Michael E. Jones

Stitching the Patches of History: A Study of Quilting in Scotland

This thesis explores the history of patchwork quilts in Scotland, a topic largely unexplored to date. With a door opened to a new area of women's cultural traditions, the history of Scottish textiles must now make room to include a recently rediscovered domestic craft. Although patchwork has not been as prevalent in Scotland as in other parts of Great Britain, a substantial quantity of pre-1900 era quilts survive today. I look closely at these works of art, studying patterns and fabrics particular to certain collections, to determine what has influenced and continues to influence their makers (e.g., the impact of British female monarchs upon Scottish society; the political and social climate of Scotland from the 18th century to the present day). In addition, I compare quilting in Scotland with American traditions. This thesis recognizes why patchwork has remained unnoticed as a part of Scottish history, and helps to find its place in Scotland's memory.

INTERDISCIPLINARY STUDIES

Erin M. Bednarek

Advisor: Heather L. Lindkvist

Efforts Towards Reducing the Prevalence of Type II Diabetes Mellitus in Samoa

The prevalence of type II diabetes mellitus is increasing throughout the world, due in large part to the adoption of sedentary lifestyles and dietary changes. Genetic and cultural differences have impacted some ethnic groups more than others. Samoa, for example, has one of the highest prevalence rates in the world, with 23% of the population afflicted (STEPS Survey, 2002). The Samoan government has recognized diabetes as a problem it must deal with, and along with NGOs, has launched prevention efforts to reduce the prevalence of diabetes nationwide. This thesis examines the cultural and social barriers to primary, secondary, and tertiary care in order to determine the effectiveness of such reduction efforts. Effectiveness is evaluated through a survey administered to the general public, comparing their knowledge of diabetes prevention methods with the message stated by promotion workers. Additionally, interviews and participant-observation provide an ethnographic component. Since the onset of this disease and its complications can be avoided through lifestyle changes taught by health education, it is important to evaluate the effectiveness of promotional efforts.

Ryan T. Conrad

Advisor: William Pope.L.

Revolution in Everyday Life

This thesis presents a written and performative study into the radical reorganization of our everyday lives, in an effort to help the average American worker toil less and create a world in which he/she can engage in more desirable activities. My work is largely based on the groundbreaking (and at the same time limited) work of the Situationist, Fluxus, and Punk art movements, where participants address issues of art, culture, and politics simultaneously. It includes nine months of performance, a body of written work, and video documentation.

Peter W. Pawlick

Advisor: Heather L. Lindkvist

Photographing Torture at Abu Ghraib: Gendered Violence and the Other

This thesis considers how the images of American soldiers torturing Iraqi “detainees” at Abu Ghraib prison represent more than the physical atrocities they depict. Arab bodies are used as a medium to advance specific claims about Arabs: that they are emasculate, salacious, uncivilized, and interchangeable. The images employ visual tropes, such as simulated sex, which rely on the viewer’s *a priori* knowledge about Arab culture in order to convey meaning. In other words, the images are meaningful because they have a history; they do not inform so much as visually confirm a historically imagined truth. What is exceptional about the images, then, is not what they *say*, but what they *do*. I argue that the dehumanizing potential of the tortures is only fully realized with the dissemination of the images.

Nicole F. Shulman

Advisor: Georgia N. Nigro

“Pockets of Acceptance”: Gay- and Lesbian-Headed Families Speak about Interactions with Their Children’s Schools

Recent news stories have featured claims that certain cartoons “encourage homosexuality”; others describe community debates over the appropriate societal place for children of gay and lesbian parents. Yet, with heightening political activism, advocacy, and public awareness, the gay, lesbian, bisexual, and transgender (GLBT) community has also gained visibility in more positive ways. Social science research in the last two decades has paid increasing attention to GLBT issues, particularly GLBT families. By some estimates, well over a million gay or lesbian parents and over two million of their children reside in the United States. According to an established body of research, no major psychological or sexual orientation differences exist between children of heterosexual versus homosexual parents, except that children raised in same-sex households may be more open to experimenting with same-sex encounters before later adopting a sexual orientation. Still, few other aspects of GLBT family life have been considered. One neglected area is the day-to-day interactions of gay and lesbian parents with institutions such as schools. This thesis examines gay and lesbian families’ perspectives on interactions with their children’s schools. Through a series of tape-recorded interviews with gay and lesbian parents and their children, emergent themes are identified and analyzed.

Sarah R. Sherman-Stokes

Advisor: William Corlett

Building Alternatives in a Global Economy: The Nueva Vida Women's Sewing Cooperative

Against the pressures of an increasingly globalized economy rife with exploitative labor conditions, a group of women in Ciudad Sandino, Nicaragua, is working collectively to meet their material needs while resisting the forces of economic co-optation. The Women's International Sewing Cooperative of Nueva Vida (COMAMNUVI) recently became the first cooperatively-owned free trade zone in the Americas, but is it really an alternative form of economic development? Using various measures of success, including those expressed by the women themselves in interviews conducted in May 2004 and January 2005, as well as other criteria derived from traditional development, postcolonial, and post-development scholarship, I assess the extent to which 1) material needs are being met, 2) risks of co-optation are being avoided, and 3) cooperative ownership is changing the way we talk about and bring about alternative economic developments.

MATHEMATICS

Jennifer E. Hanley

Advisor: Meredith L. Greer

An Examination of the Presence and Biological Implications of Bifurcations Located within a Continuous-Time Model of Nucleated Polymerization

A recent resurgence of media coverage concerning Bovine Spongiform Encephalopathy (BSE) has made its more commonly known label, Mad Cow Disease, a household name. However, beyond its name and a handful of defining characteristics, scientists remain uncertain about the majority of "facts" concerning the disease. Current evidence suggests that BSE is a prion disease that spreads through a host by the biological process of nucleated polymerization. Regarding this assumption as true, I investigate the development of BSE within a host by applying an area of mathematics, known as bifurcation theory, to a pre-existing, continuous model of nucleated polymerization, referred to as the Prion Model. A bifurcation acts as the threshold above or below which a small variation in the value of a parameter produces an extreme change in the long-term behavior of the system's solution. The presence of bifurcations in a model can have serious and useful effects on the model's practical

applications. I employ an array of standard and adapted techniques to determine the presence, location and type of bifurcation that exists within the Prion Model; and examine the bifurcation's potential biological implications on BSE and prion diseases in general.

Nicholas H. Violi

Advisor: David C. Haines

Axiomatic Set Theory, with Interactive Simulations, and Calculations in the Scheme Programming Language

In the twentieth century, concepts and relationships from the field of set theory were understood to be extremely important in the foundation of mathematics. Axiomatic set theory, the most common system of which is called Zermelo-Frankel, was created to formalize the basis for mathematics, effectively justifying simple statements taken for granted by mathematicians and lay-people alike. The first part of this thesis traces the process through its misunderstood roots, its promising maturation, and some unexpected, unbelievable and unsettling results (e.g., Gödel's incompleteness theorem; the Banach Tarski paradox). Along the way I examine some important proofs and consequences, such as the axiom of choice, Zorn's lemma, and the continuum hypothesis in depth. The second part attempts to model basic mathematics in the Scheme programming language, using only the ten Zermelo-Frankel set theoretic axioms and basic propositional and predicate calculus. I start by modeling the very idea of a set and the axioms, then go on to model the finite natural numbers and infinite ordinal and cardinal numbers, as well as the tools necessary to compare them and perform simple arithmetic. These programs can theoretically be used to model any arbitrary statement in mathematics.

NEUROSCIENCE

Kristin A. Gerhold

Advisor: Nancy W. Kleckner

Molecular Characterization of Two Ionotropic Glutamate Receptor Subunits from the Pond Snail, *Helisoma trivolvis*

Inotropic glutamate receptors (iGluRs) are a class of four subunit transmembrane proteins that, in the presence of glutamate, form specific pores in the cellular membrane, allowing cations, most prevalently sodium, to flow into the cell. In the mammalian nervous system, these channels are important for excitatory signaling between neurons; however less is known about iGluR function in invertebrates. In the pond snails *Helisoma trivolvis* and *Lymnaea stagnalis*, excitatory glutamate signaling between neurons of the buccal ganglia is essential for the patterning of feeding behavior. Two iGluR subunits have already been sequenced from *Lymnaea* and one of these receptors has been expressed in *Xenopus* oocytes, allowing for characterization of its ion specificity and pharmacological responses. From this information, as well as the sequences of iGluR subunits from other species, we hope to amplify and sequence, via degenerate primer PCR and RACE-PCR, the non-NMDA iGluR subunits from *Helisoma trivolvis* and its close relative *Biomphalaria glabrata*, the intermediate host of the human blood fluke *Schistosoma mansoni*, which is the target of an ongoing genome project. These sequences allow us to characterize the activity of *Helisoma* iGluRs in vitro and help elucidate the mechanism of patterned feeding behavior in these animals.

Nicole A. Langelier

Advisor: John E. Kelsey

The Therapeutic Effects of Caffeine and Adenosine 2A Antagonists on Forepaw Stepping in an Animal Model of Parkinson's Disease

Parkinson's disease (PD) is an age-related motor disorder resulting from neurodegeneration of dopamine producing neurons within the striatum. Epidemiological studies suggest caffeine consumption lowers the risk of developing PD. Subsequent studies employing an animal model of PD suggest that caffeine mediates its neuroprotective effects through antagonism of basal ganglia adenosine 2A (A_{2A})

receptors. I seek to determine if caffeine and the A_{2A} antagonist SCH-58261 will exert a therapeutic effect in an animal model of PD. The neurotoxin 6-hydroxydopamine was used to create a unilateral Parkinsonian lesion by selectively destroying dopamine neurons within the medial forebrain bundle, and the forepaw stepping test was used to assess the efficacy of these drugs in treating motor impairment. It was found that caffeine (15 mg/kg) improved stepping and, while SCH-58261 (1 mg/kg) did not improve stepping on its own, a combination treatment of SCH-58261 (1 mg/kg) with L-DOPA (8 mg/kg) had a synergistic therapeutic effect and improved stepping to a greater extent than L-DOPA therapy alone. I hope to examine the effects of other doses of SCH-58261 and other A_{2A} agonists in this paradigm. Results indicate caffeine and caffeine-like drugs have therapeutic properties that may make them future targets for PD treatment.

Jason R. Rafferty

Advisor: Nancy W. Kleckner

Glutamate Signal Transduction Pathways Causing Inhibition in Buccal B5 and B19 Neurons of *Helisoma trivolvis*

The inhibitory effects of the neurotransmitter glutamate play an essential role underlying feeding behavior in the pond snail, *Helisoma trivolvis*. Normal feeding behavior is produced through a specific pattern of interneuron activation maintained through the strategic excitatory and inhibitory signaling of glutamate within the buccal ganglia region of the central nervous system. Most research on glutamate transmission focuses on its role as the primary excitatory neurotransmitter in the vertebrate nervous system. There is very little information on glutamate's role in invertebrate systems, particularly glutamate's involvement in inhibitory signaling. This thesis aims to determine the signaling pathways through which two specific buccal neurons, B5 and B19, are inhibited by glutamate. It involves discovering whether activated glutamate receptors facilitate inhibition directly (ionotropic) or indirectly, using other second messenger molecules (metabotropic). The electrical properties of these buccal neurons are observed while they are in the presence of pharmacological agents that induce or inhibit the functioning of specific receptors and proteins. Testing is done on neurons that are isolated from the whole ganglia to eliminate the influences of other neurons on B5 and B19. Evidence from other mollusk systems suggests that the glutamate inhibitory response follows a metabotropic pathway using G proteins.

PHILOSOPHY

Russell T. Anderson

Advisor: Mark B. Okrent

Rules in the Game of Baseball: A Discussion of Their Structure, Nature, and Microcosmic Imitation of the Rules Governing Human Existence

Utilizing a structured discussion of the various types of rules in baseball—what they are, how they are implemented and enforced, and what they mean—this thesis provides a rubric by which rules in any game may be analyzed. I have delineated three categories of rules: constitutive, regulative, and unwritten. Constitutive rules I describe as those that define the game as such, while regulative rules are flexibly imposed to regulate competition, and unwritten rules govern the more spiritual aspects of sport. I choose to focus on the game of baseball because it is unique in the complexity and depth one finds in each of the three types of rules within it. As a point of comparison, I use the non-physical game of chess. I have also dedicated the final section of this thesis to an exploration of how rules in baseball microcosmically reflect rules governing the human condition.

Tucker W. McKinney

Advisor: Mark B. Okrent

A Calculus of Being or the Being of a Calculus? An Essay in the Metaphysics of Mathematics

The purpose of this thesis is to give an alternative account of the nature of mathematical truth and knowledge. Benacerraf (1973) determined that prior work in the philosophy of mathematics brought about an impasse between Platonists, who insist on the reality of abstract mathematical objects, and Formalists, who deny the existence of mathematical objects and describe mathematics in terms of rule-governed operations upon symbols. Against these dominant views, I sketch two separate accounts of mathematical science founded on the Kantian notion of transcendental constitution. I argue that these constitutional accounts allow us to affirm that mathematics is descriptive of objective reality, while mitigating the metaphysical difficulties that have plagued other realist accounts. After defending constitutional analyses *in specie*, I weigh the relative successes and shortcomings of each account in an attempt to determine which is better equipped to address the epistemological and semantic concerns facing the contemporary field of inquiry.

PHYSICS

Shaun J. Higginson

Advisor: George A. Ruff

A Cesium Vapor-Cell Magneto-Optical Trap and Photoassociation of Cs Below the $6S_{1/2}$ $6P_{3/2}$ Asymptote

With the use of diode lasers and magnetic fields, it is possible to trap—i.e., cool and confine—neutral Cs atoms, thereby providing the conditions necessary to form cold Cs molecules that can be studied spectroscopically with high resolution. The mechanism by which cold molecules are formed within the magneto-optical trap is called photoassociation. Photoassociation involves absorption of a photon by two colliding Cs atoms, promoting the pair to an excited, attractive, long-range molecular state with a specific rotational-vibrational energy level. A decrease in atomic fluorescence from the trap is an indication of photoassociation. By detuning the photoassociation-laser from the $6P_{3/2}$ asymptote, a trap-loss spectrum is generated. It may then be analyzed to determine the dispersion coefficient C_3 that describes the long-range attraction, and to determine the vibrational quantum numbers corresponding to previously occupied vibrational energy levels below the $6P_{3/2}$ asymptote.

Bryon J. Viechnicki

Advisor: Hong Lin

An Experimental Study of the Influence of Optical Feedback on Multi-Mode Vertical-Cavity Surface-Emitting Lasers

The effect of optical feedback on the lasing modes and polarization of vertical-cavity surface-emitting lasers (VCSELs) is experimentally studied. Recent research on VCSEL behavior has demonstrated the ability of optical feedback to affect spectral characteristics, decrease threshold current and result in dynamical behaviors in polarization. Results of this experimental study are consistent with the field's literature. A multi-mode VCSEL operated near threshold that is not under the influence of optical feedback produces two orthogonally polarized modes. By applying unpolarized optical feedback to such a multi-mode VCSEL, single-mode operation is achieved near threshold. At higher currents multi-mode VCSELs produce increasing numbers of lasing modes. The application of optical feedback allows control over the intensity and polarization of these lasing modes.

POLITICAL SCIENCE

Christina L. Chamberlain

Advisor: Leslie I. Hill

“Women—We Can’t Win Without Them!”: Gendered Mobilization and the U.S. State in World War II

The World War II era is commonly characterized as a watershed moment in United States history and a turning point for American women in particular. However, an examination of wartime gender politics challenges the notion that this interlude inspired lasting transformations in gender relations or ideologies; instead, the period may be better understood as a temporary and calculated aberration from pre-war gender norms. Public and politicized participation in projects on the home front propelled women physically and ideologically beyond the boundaries of the private realm, yet their lives continued to turn largely on private gender identities and roles. A study of the ideological terms on which they were mobilized for production and consumption activities suggests this may have resulted from a concerted effort by the state to simultaneously conscript and contain women during the war. Mobilization propaganda not only recruited women’s productive and reproductive labor, it also manipulated mainstream notions of gender in accordance with wartime needs of the state. This thesis examines the gendered ideological content of state-sponsored propaganda in order to determine how states’ war mobilization strategies influence long-term gender politics.

Nathan B. Harrington

Advisor: Diane Haughney

Central America Solidarity: The Twilight of a Movement or a New Globalization from Below?

In the early 1980s, a dynamic U.S. social movement emerged in opposition to the Reagan administration’s policies toward Central America. Hundreds of local committees nationwide protested and lobbied against U.S. aid to repressive governments in Guatemala and El Salvador, along with counter-revolutionary rebels in Nicaragua. The Central America Solidarity Movement stood among the foremost manifestations of leftist politics during that generally conservative decade. However, as Central America’s bloody civil wars came to an end in the early 1990s, and media and public attention

shifted to other world events, the movement saw a decline in funding, staffing, and membership. Many important organizations remain active, and they make for unique case studies in how social movement organizations respond to changes and maintain themselves over time. Based on interviews with staff members from nine case study organizations, I argue that long term viability and vitality of the organizations is determined in part by their ability to take on new and address past grievances in response to events and political opportunities, frame these issues in ways that resonate with old and new constituents, and create avenues for meaningful participation and the formation of a collective identity among supporters.

Rebecca H. Perlmutter

Advisor: Leslie I. Hill

Women Empowered: Engendering the Response to HIV/AIDS in South Africa

South Africa is a country of contradictions. Ten years into democracy, it is presented as the “poster child” for both developed and developing nations. Its constitution is one of the most liberal in the world, prohibiting practically all forms of discrimination, and promoting the right to equality, dignity, and freedom. The state has instituted a variety of protective mechanisms to counteract the devastating consequences of apartheid. Women, who were disproportionately affected, form the centerpiece of much of the equality rhetoric. The national machinery is in place for gender equality, but gender discrimination, sexual violence, and oppression of women is still common. All of this amounts to a depressing paradox—South Africa appears gender-progressive, but material manifestations are lacking. In conjunction with this paradox is a national mythology that denigrates black women and assigns them fixed characteristic. This provides a case study for analyzing the levels of the state and exposing their gendered nature. The current HIV/AIDS pandemic affects black women disproportionately, thus offering an opportunity to use gender as a lens for talking about democratization. This thesis examines how state policy, law, action, and rhetoric decrease and/or exacerbate black women’s vulnerability to HIV/AIDS.

PSYCHOLOGY

Rodrigo H. Dias

Advisor: Krista M. Scottham

Acculturative Strategies and the Psychological Adaptation of Japanese Brazilian Migrants in Japan

The history of migration between Brazil and Japan dates back to 1908, when the first Japanese immigrants arrived in Brazil. Recently the course has reversed and Brazilians of Japanese descent are migrating to Japan. Like their earlier counterparts, these contemporary immigrants are faced with the challenge of maintaining their cultural heritage while participating in the host society. Research conducted with various immigrant groups indicates a set of coping strategies, or acculturative styles, typically utilized by immigrant populations adapting to a host culture. Furthermore, this research indicates a relationship between acculturative style and psychological health. However, no research to date has targeted Japanese Brazilian populations living in Japan. Thus, this thesis focuses on how acculturation strategies adopted by this population relate to their psychological well-being. In Study 1, the relationship between acculturative strategy and psychological health was examined among 82 Japanese Brazilians living in Japan. Results indicate a significant relationship between acculturative style, level of acculturative stress, and life satisfaction. However, measurement issues related to the assessment of acculturation arose within this study. Therefore, Study 2 builds on the former by focusing on the development of an acculturative measure specifically for use with Brazilian Japanese living in Japan.

Joanna E. Dove

Advisor: Kathryn G. Low

Substance Abuse, Eating Pathology, and Body Objectification

This thesis investigates eating behaviors and substance abuse in relation to body objectification, employing a study of 104 male and female college students. Participants completed sections of The Shorter PROMIS Questionnaire on bingeing, alcohol, nicotine and drug use, The Eating Disorders Diagnostic Scale (EDDS), The Fredrickson Self-Objectification Questionnaire, the Rosenberg Self-Esteem Scale, Center for Epidemiological Studies Depression Scale and an alcohol use questionnaire. Mean

scores and correlations on these measures differed significantly for men and women. It was predicted that scales assessing use of nicotine, alcohol and drugs would be correlated, and that substance use would be related to bingeing and body objectification. Alcohol use (PROMIS) in women was significantly related to nicotine use, bingeing (PROMIS), EDDS total and depression. Nicotine use in women was also related to drug use and alcohol use, but not to any eating measures. Unlike alcohol users, female nicotine and drug users had higher body objectification. As was hypothesized, bingeing was also significantly correlated to body objectification. Stepwise multiple regression models were used to predict bingeing, nicotine use, drug use, and alcohol use after controlling for gender and BMI. This previously unstudied relationship between nicotine, drugs and objectification requires further investigation.

Meryl F. Glicksman

Advisor: Georgia N. Nigro

Exploring the Relationship Between Theory of Mind and Children's Telephone Narratives

Theory of mind (ToM) is the term used to describe how children develop an awareness of mental states, which includes an understanding of thoughts, beliefs, desires, and emotions. Mental state awareness is important for adequate and meaningful participation in individual and social activities such as communication. For over 25 years the notion of ToM has shaped research about cognitive development, research that has typically focused on young children's individual development and awareness of mental states. Recent critics of ToM suggest that current models do not account for the role of social interaction in ToM development. These critics propose more social or collectivist frameworks for envisioning ToM. By assessing both individual areas of knowledge about the mental world, as well as social interactions, this thesis aims to better conceptualize the relationship between developing a theory of mind and children's telephone narratives. Four- and five-year-old participants completed five ToM tasks and narrated a wordless picture book on the phone to a parent. Telephone narratives were analyzed to identify specific elements of mental state language.

Kara K. Seaton

Advisor: Michael Sargent

Implicit Health Attitudes: Can Health Behaviors be Predicted by the Implicit Association Test?

This thesis seeks to understand the connection between implicit and explicit attitudes and behavior. Specifically, my research uses the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998) in order to predict specific health attitudes and behaviors. In the first experiment, two separate IATs are used to measure health attitudes toward doctors and medicine and exercise. The second experiment investigates the malleability of implicit health attitudes. All experimental conditions utilize Krantz's Health Opinion Survey (Krantz, Baum & Wideman, 1980) and the Attitudes to Doctors and Medicine Scale (Marteau, 1990) to measure explicit attitudes. In order to determine exercise habits, participants also fill out an Exercise Timeline Followback Calendar, on which they record the duration of exercise sessions over the previous 30 days. Results should show that implicit attitudes predict behaviors related to health professionals and exercise, and that these implicit attitudes can be changed.

Sienna C. Vorono

Advisor: Kathryn G. Low

The Effects of Stimulants Prescribed for the Treatment of ADHD on Fatigue during Exercise

In recent years there has been an increase in awareness and knowledge of attention deficit hyperactivity disorder (ADHD), as well as an increase in the number of prescriptions for the treatment of ADHD. It has been suggested that there is a need to learn more about whether prescribed stimulant medications provide mental or physical advantages, or put people at risk for health complications during exercise. It is unclear whether new stimulants, and in particular methylphenidate, have similar effects to Dexedrine, which has been shown to have performance enhancing effects. In addition, it is unknown whether the effects will be apparent in young adults and/or females, as past researchers have often not included these populations in their studies. This study tested lactic acid accumulation, heart rate, blood pressure, and exercise tolerance through measures of fatigue in individuals both on and off prescription stimulants and non-stimulant user controls during a running task. Preliminary analyses suggest that participants on stimulants report less general and muscular fatigue and have higher levels of lactic acid than non-stimulant users, supporting the idea that newer prescription stimulants mask sensations of fatigue and perhaps affect athletic performance.

Rebecca M. White

Advisor: Rebecca L. Fraser-Thill

Do Nullification Instructions Exacerbate Racial and Gender Biases Even When Dogmatism is Controlled For?

The presence of racial bias in the courtroom is well documented. Furthermore, there is ample evidence to support an “own-gender” bias, in that mock jurors are more lenient toward defendants of their own gender. This thesis investigates whether providing jurors with nullification instructions, which inform jurors of their power to reject the formal law, exacerbates own-race and own-gender bias. Previous research determined that certain personality variables, such as dogmatism, affect the way judicial instructions are processed. In Study 1, participants read a trial summary where the race of the defendant was varied and received nullification or standard instructions from the judge. Subsequently, they rated the defendant’s guilt and the strength of both the prosecution and defense cases. This was followed by a questionnaire assessing dogmatism. A between-subjects univariate analysis of variance (ANOVA) is run on guilt, prosecution and defense case strength in a 2 (black vs. white defendant) X 2 (nullification vs. standard instructions) X 2 (black vs. white juror) design, with dogmatism as a covariate. It is expected that providing nullification instructions will worsen the bias, even after the effects of dogmatism are controlled. The same procedure is executed for Study 2, but the variable is gender.

SOCIOLOGY

Christina C. Alioto

Advisor: Emily W. Kane

Voices Unheard: The Reproduction of Gendered Power in Maine Protective Order Proceedings

Despite recent reforms, victims, researchers, and advocates find that the criminal justice system continues to deliver problematic service to battered women. This thesis examines how both rural and urban courts serve battered women seeking orders of protection from abuse. Research based on informal interviews and courtroom observation in rural and metropolitan Maine courts found that both systems make significant efforts to equitably serve and protect women in the protection order process, with positive features such as judicial support, availability of legal aid and the presence of advocates in the

courtroom. However, the study ultimately found that despite positive improvements, women seeking protection orders in both court settings still face significant obstacles to their fair treatment and safety in relation to issues of judicial behavior, behavior of lawyers and court personnel, the nature of legal procedures, access to services and pressure toward consent agreements as an alternative to a judicial finding of abuse through a hearing. The study also concludes that rural battered women face greater and different obstacles in the protection order process than women in the metropolitan court setting, including issues of a "small town patriarchy" and insufficient access to legal and other services.

Eric Batscha

Advisor: Francesco G. Duina

Promoting Europe: An Investigation of European Union Democracy Promotion in Turkey, Slovakia, Afghanistan, and Iraq

Since the signing of the Maastricht Treaty in 1992, external policies have been at the foundation of the European Union's (E.U.) second pillar and enhance perception of the E.U. as a global actor. Democratization has always been at the heart of E.U. external relations. Since September 11, 2001, the E.U. and other world entities have turned to promotion of democracy as a means to suppress new terrorism threats to foreign and domestic security. This thesis examines the change in E.U. democratization efforts in Third World countries before and after 9/11. Enlargement negotiations with Turkey and Slovakia provide insight into E.U. policy before 9/11. Development and reconstruction efforts in Afghanistan and Iraq illustrate case studies to explore E.U. efforts to promote democracy after 9/11. Data comes from statements and projects developed by different E.U. agencies. The analysis shows a significant shift in methods, priorities, and impact away from a "bottom-up" philosophy where the target countries are given aid for grassroots projects and toward a "top-down" approach, where nations are revitalized through infrastructure reform. Overall, by analyzing the E.U.'s evolution in the field of democracy promotion, this study adds a perspective on the Union's evolving role on the world stage.

Andrea K. Hopkins

Advisor: Emily W. Kane

Subjective Interpretations of the Relevancy Rule: Are the Questions Asked of Rape Victims Putting Them on Trial?

This thesis explores how victims of Criminal Sexual Conduct (CSC) are treated when they testify against their alleged attacker. Specifically, I look at the laws regarding what questions attorneys can

ask victims, and whether those laws are followed in practice. I first conduct a literature review in which I discuss gender and the law, rape and the law, courtroom practice and issues of inequality in treatment among rape victims of different classes and races. I then discuss my methods, which include an analysis of ten CSC trial transcripts, focusing on the victim's testimony, and interviews of seven attorneys (three prosecutors and four defense attorneys). Preliminary data analysis suggests that the courts may be defining relevant information too broadly, thus allowing victim testimony into evidence that, in essence, puts the victim herself on trial. For example, the victim is often asked questions about her clothing at the time of the assault, whether anyone can corroborate that she was assaulted, and whether or not she experienced an emotional reaction after being assaulted. This thesis examines such questions that are asked of victims to evaluate whether or not the definition of relevancy needs to be reexamined.

Jillian B. Murphy

Advisor: Emily W. Kane

Creating Choice and Choosing Contraception: A Quantitative Analysis of the Factors Influencing Adolescent Women's Decisions about Contraceptive Use

Following a long history of neglect and suppression, heterosexual adolescent sex has gradually become recognized as a social reality in the United States, and substantial sociological efforts are being made to understand the sexual lives of teenagers. One of the most important ways heterosexual teenage sexual activity can be conceptualized is through studying teen contraceptive practices. My research examines what factors influence female adolescents' decisions about contraception at three different levels: institutional, interactional, and individual. I use the 1994-1996 National Longitudinal Study of Adolescent Health to quantitatively measure how variables selected at each of those levels affect teenage women's contraceptive choices. Preliminary findings indicate strong relationships between adolescent women's contraceptive decisions and institutional variables of race and class; interactional variables of parental communication and peer pressure; and individual variables of contraceptive knowledge and religiosity.

Deborah J. Opar

Advisor: Emily W. Kane

Race, Religion and Reception: Exploring Segmented Assimilation and the Somali “1.5” Generation

Immigration scholar Alejandro Portes formulated the concept of segmented assimilation, arguing that the immigration process is not linear, as traditional assimilation theorists suggest, but rather, varies among different social groups (Portes and Rumbaut, 2001). Portes declares that immigrants differ in their levels of human capital, modes of incorporation, and individual family structure. Combinations of such variables result in incorporation into varied segments of American society. These segments include immediate positive reception into middle-class America (consonant acculturation), the creation of co-ethnic niches (selective acculturation), and finally “downward assimilation” into lower class America (dissonant acculturation). This thesis asks whether the youth of the Somali refugee migration fit into this model of segmented assimilation, and if so, to which segment? I conducted qualitative interviews with Somali second-generation refugee youth in the communities of Boston, Massachusetts, and Lewiston, Maine. Preliminary data analysis leads me to argue that no *one* of Portes’s three segments of assimilation accurately describes the Somali experience; however, selective acculturation appears to be the closest thus far.

SPANISH

Kara M. Cronin

Advisor: Claudia Aburto Guzmán

Los Terremotos Literarios de Alberto Fuguet

Esta tesis analiza los cuentos y las novelas de Alberto Fuguet, un autor chileno quien pertenece a la generación McOndo. Esta es una nueva generación de escritores e intelectuales quienes critican la literatura de Latinoamérica conocida como el realismo mágico. Se salen de las normas de la novela latinoamericana conocida como la novela del realismo mágico. La generación McOndo comenta la realidad presente. En los cuentos de *Sobredosis* (1990) y sus novelas *Mala Onda* (1991), *Por Favor Rebobinar* (1998) y *Las Películas de Mi Vida* (2003) Alberto Fuguet comenta la fragmentación de la sociedad como resultado de la globalización. La globalización es un “terremoto” que agita las tensiones

entre la modernidad y la identidad. Los medios de comunicación son la herramienta de la globalización, de acuerdo con ello, Alberto Fuguet los usa en su literatura para ilustrar los efectos de la globalización. A través de un análisis de sus obras, mostro que Fuguet siente que el hombre está modificado por la etapa tardía de la modernidad, pero también reconoce que la misma no siempre es algo negativo.

THEATER

Molly A. Coogan

Advisor: Martin E. Andrucki

Searching: An Acting Analysis of Olga Prozorov in *The Three Sisters* by Anton Chekhov

My honors thesis centers on the analysis and performance of the Anton Chekhov play, *The Three Sisters*. The written section of the thesis includes an analysis of Chekhov's other theatrical works in relationship to *The Three Sisters*, it examines similarities and differences between the various plays, and draws connections between the character of Olga in *The Three Sisters* with characters in Chekhov's other works. This thesis also embraces a practical action, as I portrayed Olga in six performances of the full-length play, staged in March 2005 and directed by Professor Martin Andrucki. A daily rehearsal journal was incorporated into the written thesis. It detailed my experiences, realizations, and frustrations throughout the rehearsal process and summarized my hopes and goals for the final week of rehearsals and performances.

Alixandra M. Liiv

Advisor: Martin E. Andrucki

An Acting Analysis of Masha From *The Three Sisters* by Anton Chekhov

This thesis is an interpretation of the character Masha from Anton Chekhov's *Three Sisters*. In addition to practical rehearsals five days a week for three hours a day, I submit a written component that includes an Aristotelian analysis of the play, a character arc for Masha (which includes objectives, obstacles, actions, etc.), a brief comparison with Chekhov's other plays, and finally a journal that documents the rehearsal process.