

# Bates College

2005 – 2006 Honors Theses Abstracts

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2005 - 2006 HONORS RECIPIENTS**

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## Anthropology

**Tracey Begley**

*Advisor:* Steven Kemper

### **NGOs in the Face of Development Criticism: Humanitarian Landmine Removal in Afghanistan**

After the successful revival of the post-World War II European economy, intergovernmental organizations focused on developing "Third World" countries. Recent years have seen a rise in criticism against poorly implemented development projects often utilizing "top-down" techniques, disregarding local interests. Criticism splits into two main groups: those who hold economic laws true on a global scale, emphasizing the free market, and those who assert development as a discourse allowing powerful institutions and countries control over the less powerful. As the tension within development practices grew, the number of nongovernmental organizations (NGOs) rose dramatically, many concerned with development aid. Struggling for options under this heavy critique, NGOs came to the forefront as international actors with fresh ideas. Katy Gardner and David Lewis propose that NGOs, with attributes such as flexibility, local connections, and participation, could serve as "alternatives" to traditional development practices. I study one NGO, The HALO Trust, investigating its characteristics in light of its role as a possible model for alternative approaches to conventional development work. The HALO Trust, a British NGO, was the first organization to undertake humanitarian landmine removal, beginning in Afghanistan in 1988. Humanitarian landmine removal organizations have only recently been considered development work, and my thesis provides insight into the unique strengths of HALO, while acknowledging factors hindering it from complete independence.

**Lindley Brainard**

*Advisor:* Heather Lindkvist

### **Deconstructing Edgar Cayce and His Impact on Contemporary Holistic Medicine**

Edgar Cayce, a clairvoyant diagnostician, was prescribing holistic medical treatments more than half a century before the emergence of the holistic health movement in the United States. Cayce's treatments of patients often employed both known and unknown methods of healing, including traditional western medicine, osteopathy, homeopathy, hydrotherapy, natural remedies, and different chemical interventions. Similar to modern holistic approaches to healing, his recommended treatments encompassed the whole person, going beyond physical symptoms to address the mental, emotional, and spiritual needs of the patient. Consequently, contemporary practitioners often credit Cayce with being the "father of holistic health" in the United States. Through a comprehensive ethnographic analysis, this thesis examines the underlying philosophies of holistic healing

as practiced by Cayce and the continued research and promotion of his work through educational organizations, such as the Association for Research and Enlightenment, in order to show how Edgar Cayce opened the door to the contemporary holistic health movement during a time when allopathic methods have dominated the field of medicine.

**David Desjardins**

*Advisor:* Bruce Bourque

### **An Exploration of the Iroquois Frontier**

Throughout the colonial period, the Iroquois League of Five Nations (later Six Nations) came into contact with European and Algonquian groups along dynamic geographical and cultural frontiers. This thesis explores how the nature of these frontiers changed through time, both before and after the Iroquois began to interact with Europeans, and how these frontier processes ultimately affected Iroquois identity. Did the Iroquois peoples undergo a nation-building process analogous to that of their European neighbors on their colonial frontier? To fully understand the transformation of Iroquois society during the colonial period, this study begins by examining the origins of these people as an identifiable group. It then explores historical events that took place along the frontier with English, Dutch, and French colonists as well as the Algonquian tribes in order to understand the motivation of the Iroquois in interacting with their neighbors. Overarching traditional frontier and tribal zone systems are then applied to examine these interactions and come to terms with how they affect overall Iroquois identity.

**Charlene Impey**

*Advisor:* Loring Danforth

### **Making Citizens, Making Soldiers: The Militarization of an American High School**

At Lewiston High School (LHS) and over 1,500 other American high schools, students walk the halls in military uniform and practice drill in the school's gym as part of their normal day as high school students and members of the Junior Reserve Officers' Training Corp. The JROTC, funded and created by the Department of Defense, is a military program designed for high school students. Critics of the JROTC claim that it is a recruiting strategy and a means for indoctrinating youth with military ideology. The Department of Defense refutes these accusations and argues that it is an academic program of civic education aimed at "motivating youth to be better Americans." My analysis of the JROTC focuses on how the discourses used in this debate position the JROTC in relation to LHS. Using Foucault's concepts of discourse, power/knowledge and genealogy, I examine how the extension of modern disciplinary power to the military has intensified the process of militarization and enabled the JROTC to be "just another



program" at LHS. The goal of this thesis is not to evaluate the JROTC, but rather to examine it as a form of militarization of American schools and citizenship.

## Art and Visual Culture

**Julia Knight**

*Advisor:* Erica Rand

### **The Art of Sex: Madame de Pompadour and Peggy Guggenheim**

This thesis explores the relationship between sex, art, and power through two case studies of female patronage. Specifically, I consider two women art patrons who utilized sex in conjunction with their roles as benefactors: Madame de Pompadour, official mistress of Louis XV who went on to hold political power in the French court, and Peggy Guggenheim, a New York socialite who spent most of her life in Europe collecting art and husbands. Although each woman employed and understood sex in different manners, sex and their sexual relations constituted major parts of their patronage: Madame de Pompadour used sex to win the affections of the king who in turn gave her access to royal funds, while Peggy Guggenheim saw sex as a more recreational activity not connected to her personal finances. Looking at gender and economics in relation to power, I seek to understand how sex can be manipulated and used not only in the personal lives of these two women, but also how sex is portrayed or hidden in the art work they sponsored.

## Biological Chemistry

**Emily Davie**

*Advisor:* Rebecca Sommer

### **Investigations into Putative Dioxin Response Elements Upstream of Beta-Adrenergic Genes**

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) is a carcinogenic chemical found as a contaminant in herbicides, pesticides, and the bleaching process during paper manufacturing. Acute high dose exposure causes organ damage and facial abnormalities, while chronic exposure causes birth defects, immune suppression, and cancer. TCDD exposure also causes heart abnormalities, although the exact mechanism has not yet been determined. TCDD is hypothesized to work through the aryl hydrocarbon receptor (AhR) and the aryl hydrocarbon receptor nuclear translocator (ARNT) to increase expression of the  $\beta_1$ -adrenergic receptor ( $\beta_1$ -AR), a receptor critical in the regulation of heart function. AhR and ARNT bind together in the presence of TCDD, creating a protein dimer that binds to short sequences in promoter regions of DNA called dioxin response elements (DRE's), altering transcription rates for that gene. Several genes, such as the gene for

cytochrome P450 1A1, are known to be upregulated by AhR and ARNT binding. Using electrophoretic mobility shift assays (EMSAs) this study investigates whether DRE's found in the promoter regions for the  $\beta_1$ -AR in several different species can bind to a complex of AhR, ARNT, and an activating ligand.

## **Biology**

**Meghan Cochrane**

*Advisors:* Lee Abrahamsen and Stephanie Richards

### **Autoimmunity to Type V Collagen and Lung Allograft Rejection in Miniature Swine**

Lung transplantation is the only therapeutic treatment for people suffering from different end-stage lung diseases (Haque et al., 2002) including emphysema, cystic fibrosis, pulmonary fibrosis, and pulmonary hypertension (Allan et al., 2002). The major obstacle to long-term allograft acceptance and recipient survival is chronic rejection (CR) (Haque et al., 2002; Sayegh and Turka, 1998). The principle manifestation of CR in the lung is obliterative bronchiolitis (OB) (Sayegh and Turka, 1998; Allan et al., 2002), which restricts airflow in the lung. Although alloimmunity to donor MHC antigens is the primary mechanism leading to CR, studies have demonstrated that antigens such as type five collagen (colV), a minor collagen found in connective tissues of the lung, can initiate a host immune response. Under normal conditions, colV is complexed within type I collagen; however, the inflammation and extensive remodeling caused by transplantation exposes colV peptide fragments to the host immune system, leading to organ rejection (Sumpter and Wilkes, 2004). The purpose of this study is to determine whether the development of reactivity to colV correlates with lung allograft rejection in a whole-lung miniature swine model. It will be determined by ELISA whether sera from recipient swine that reject their lung allograft develop antibody to colV compared to sera from naïve and tolerant animals. We hypothesize that reactivity to colV correlates to the development of chronic lung allograft rejection. It is anticipated that serum from rejecting pigs will contain antibody to colV, whereas sera from naïve and tolerant animals will not.

**Brian Dupee**

*Advisor:* William G. Ambrose

### **The Effect of Baitworm Digging and Epibenthic Predation on the Growth and Survivorship of the Soft-Shelled Clam (*Mya arenaria*) and on the Abundance and Diversity of Soft-Sediment Infauna**

The effects of harvesting intertidal species on soft-sediment communities are relatively unknown. We examined the effects of digging for blood worms (*Glycera dibranchiata*),

epibenthic predation, and the interaction between the two on the growth and survivorship of juvenile and commercial sized soft-shelled clams (*Mya arenaria*) as well as on infaunal species abundance and diversity. Commercial- and juvenile-sized clams were seeded into dug and undug plots on an intertidal mudflat in mid-coast Maine. Caging treatments were established in all plots for predator exclusion. Preliminary results suggest that digging reduces the abundances of *Heteromastus filiformis* and *Gemma gemma* by 46% and 64% respectively, while digging increased the abundance of *Nereis virens* 63%. Caging and the interaction between digging and caging had no significant effect on infaunal abundances. Preliminary results also indicated that digging had a negative effect on growth and survivorship rates of juvenile- and commercial-sized clams. Understanding the effects of digging, and predation on the survival and growth of the soft-shelled clam and on infaunal abundance will elucidate the degree of community response to digging, enabling effective management of intertidal communities and the baitworm fishery.

**Erika S. Millstein**

*Advisor:* William G. Ambrose

#### **Effects of Commercial Baitworm Digging for *Glycera dibranchiata* on Intertidal Soft-Sediment Communities in Maine**

We examined the impact of commercial baitworm digging on the structure of two intertidal soft-sediment communities in mid-coast Maine. Experimental digging was performed by a professional baitworm digger who used a standard worm hoe with 6 curved 20 cm tines and turned over 15 cm of sediment while removing *Glycera*. Four sets of paired dug and undug 5 x 10 meter plots at each site were sampled for fauna and sediment grain size at the initiation of the experiment, and then two, and four weeks following experimental digging. Samples for sediment pigments, porosity, and LOI were taken at the start of the experiment, and two days, four days, two weeks, and four weeks following digging. Preliminary data shows that there were no significant differences between dug and undug plots at one site during any of the sample dates. Similarly, at the other site no significant differences between dug and undug plots were apparent on the last sample date. A power analysis reveals that between 20 and 411 sample plots would be needed in order to detect a significant difference of 30% in the abundance of any species at 80% power on the last sample date at each site.

**Katharine Nolan**

*Advisor:* William G. Ambrose

#### **Evidence for Arctic Climate Change Based on the Growth Rates of Modern and Fossilized *Hiatella arctica* and *Mya truncata* from Svalbard**

Bivalves are useful in reconstructing environmental conditions in ancient and modern environments. We investigated modern and past climate in the Arctic during a period of climate change by comparing growth patterns of modern and fossilized individuals of two bivalves (*Mya truncata* and *Hiatella arctica*). Modern and fossil samples (carbon dated 8,000, 9,000, and 35,000 years B.P.) of both species were collected from Svalbard (78° N lat.). Presumptive annual lines in the chondrophore of each species were used to determine growth rates and inter-annual variation in growth. Preliminary analysis indicates that fossils have a slower growth rate than modern shells, suggesting that conditions have changed and current temperatures are warmer than 8,000-35,000 years B.P. We also expect to see increased inter-annual variation in growth of modern compared to fossilized individuals resulting from modern increases in inter-annual variation in temperature.

**Andrew Stowe**

*Advisor:* Ryan Bavis

### **Vocalizations of the Saltmarsh and Nelson's Sharp-tailed Sparrows: Correlating Social Interactions and Reproductive Stages with Changes in Singing Rate**

Following their recognition as separate species in 1995, the Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*) and the Nelson's Sharp-tailed Sparrow (*Ammodramus nelsoni*) were identified as species of high conservation priority in northeastern United States. To improve our understanding of sharp-tailed sparrow behavior, I studied these birds' vocalization types during the breeding season (May-August) at Atkin's Bay marsh in Phippsburg, Maine. Vocalization types, including a previously undocumented Saltmarsh Sharp-tailed Sparrow Primary Song, were recorded. Along with environmental factors (tide, temperature, and weather), the nesting stage, singing rate, and behavioral context of singing were recorded during 15-minute point-counts at 7 sampling stations distributed evenly across the marsh. The song rate of the most common song of the Saltmarsh Sharp-tailed Sparrow tended to decrease as the female reproductive stages advanced, while that of the Primary Song of the Nelson's Sharp-tailed Sparrow tended to increase. The Primary Song of the Nelson's Sharp-tailed Sparrow was also sung at different rates depending on counter-singing bouts with other males. It is clear that two important factors affecting sharp-tailed sparrow singing are the social interactions between males and the reproductive stages of the females.

## Chemistry and Physics

**Nathaniel Stambaugh**

*Advisors:* Matthew Côté and Mark Semon

### **A Theoretical Study of the Electronic Properties of Symmetric Metal Nanoparticles**

In the last ten years it has become possible to fabricate well ordered, highly symmetric structures called "nanoparticles." This term implies that the dimensions are on the order of one thousand times smaller than the width of a human hair. In this thesis we focus on nanotriangles, which can be treated as two dimensional since they have a height much smaller than their width. With increasingly complex models, ranging from the classical Drude model to models incorporating quantum effects, we investigated the electronic and spectroscopic properties of these nanotriangles, and then compared our results with experiment.

## English

**John A. Atchley III**

*Advisor:* Sanford Freedman

### **Exhuming the Present: Jameson's Method and the Imagination of History**

This thesis traces the progression in Fredric Jameson's theoretical work from his 1978 publication of *The Political Unconscious* to his 1991 publication of *Postmodernism or The Cultural Logic of Late Capitalism*, and treats the former as the genesis of the critical methods employed in the latter. Whereas *The Political Unconscious* arose in opposition to the antitranscendent hermeneutic modes of poststructural France, *Postmodernism* emerged at a time in which these poststructural theoretical methods now reinforced and facilitated the dominant social logic of the West. Jameson's key methodological figures, Althusserian causal structures, the dialectic, and ideological levels of analysis, all articulated and used throughout *The Political Unconscious*, reappear, though transformed, in *Postmodernism*. The two early and late Marxists writers, Georg Lukács and Terry Eagleton, serve to contextualize and explain this theoretical transformation. The thesis concludes by questioning the fundamental premise of Jameson's historical methodology by giving special attention to his claim that "history is *not* a text, not a narrative, master or otherwise, but that, as an absent cause, it is inaccessible to us except in textual form, and that our approach to it and to the Real itself necessarily passes through its prior textualization, its narrativization in the political unconscious."

**Sarah Beck**

*Advisor:* Robert Farnsworth

**Poets in New York: Walt Whitman, Hart Crane, and Frank O'Hara**

This thesis examines pre-modern, modern and postmodern poetry of New York City, focusing on work by Walt Whitman, Hart Crane, and Frank O'Hara. Certain similarities in tone and experience in the poetry of these three transcend the differences among their respective epochs. All three wrote poems that feature a spiritual sensibility, but the visions of urban life they develop differ based on the contexts of their lives and times. Each of these New York poets also devoted himself to the creation of a new poetics, one that tested the limits of language and tradition. Whitman created a prophetic vision for America, as did Crane, though his attempt may have faltered in the impersonally technological and secular city of the 1920s. In the 1950s and 1960s, O'Hara successfully carried the energies of New York movements in painting and pop culture into his radically new poems. All three of these poets fed on the cultural energy of New York City, expanding the range and ambition of American poetry.

**Iavora Daraktchieva**

*Advisor:* Carole Anne Taylor

**Politics and the Grotesque Female Body in Toni Cade Bambara's *The Salt Eaters* and Luisa Valenzuela's *The Lizard's Tail***

My thesis is comparative in nature and examines how African-American author Toni Cade Bambara and Argentinean author Luisa Valenzuela respond to and challenge oppressive political and cultural conditions. Bambara's novel, *The Salt Eaters*, and Valenzuela's novel, *Cola de lagartija (The Lizard's Tail)*, both focus on grotesque representations of the female body as created by a political oppression that annihilates women's sense of identity through a distortion of their corporeality. My analysis derives in part from a critical reading of Mikhail Bakhtin's conception of the grotesque human body as a liberating agent that enacts a carnivalesque upturning of the social order. Bambara's and Valenzuela's texts depict the grotesque female body in the act of transforming it. Paradoxically, the Medusa and androgynous figures in the two novels are literary bodies misshapen by oppression and yet a starting point for liberating processes. Thus, the texts address Bakhtin's idea about the grotesque body and also necessitate its reinterpretation. In my analysis, I address questions raised by feminist criticism, political criticism, and critical race theory.

**Diana Gauvin**

*Advisor:* Sanford Freedman

**A Theology of Dust: Consciousness in *His Dark Materials***

Philip Pullman's trilogy, *His Dark Materials*, explores, among other things, the cusp between childhood and adulthood. These books rest precariously on the vague line between the two genres, touching upon both the narrative style of forebears Tolkien and Lewis and the metaphysical scope of Milton and Blake. The novels might also have the political structure of More or Machiavelli; they might bridge the genre gap; they might rewrite Genesis or *Paradise Lost*—but the force that both creates and challenges these distinctions is Pullman's particular representation of consciousness. Bearing in mind the arsenal of influences that Pullman has publicly acknowledged, as well as the tenuous nature of authorial intention, I explore how the novels represent consciousness. Consciousness creates the transition to adulthood in the novel; might it also be the key to the external genre classification? When *His Dark Materials* calls for a "Republic of Heaven," is consciousness the force preventing this Heaven from becoming Hell? In order to understand the role that consciousness takes, I explore contemporary scientific theory through such voices as Daniel Dennett, in order eventually to find the particular "consciousness" on which Pullman's fantasy worlds – and the theological implications of his novels – depend.

**Megan Lynne Hamilton**

*Advisor:* Robert Farnsworth

**The Audacity of Authority: Alice Munro's *The Beggar Maid***

Alice Munro's exquisite fiction draws on her Huron County, Ontario, background with such lucid insight and textured detail that readers often conflate her imagined places with actual locations. A tour in her hometown of Wingham, Ontario, for example, pays homage to sites significant in Munro's life as well as those with fictional parallels in her books. It is not uncommon to read references to "Munrovia," in much the same way readers also speak of Cheever's Long Island or Trevor's Ireland, a curious and complicated compliment. What is it to have one's work considered a premier literary embodiment of a whole culture? What has Alice Munro's near total dedication to the short story form gained and cost her? Munro's various efforts to establish and reshape her "author"-ity have evolved over the course of her career. The most distinctive change came with 1979's *The Beggar Maid*, as Munro not only mined her memory in new ways, but questioned her own narrative impulses and pursued new technical strategies. This thesis explores Munro's imaginative authority over her own and Canadian experience, particularly as demonstrated by that book, considering how it departs from her previous volumes and presages her writing since.



**Ben Lebeaux**

*Advisor:* Sanford Freedman

**“Such Things To Be, Mere Monsters”: Writing the Monstrous from 1562 to 1726**

Through a study of Early Modern and Enlightenment references to the monstrous, both intentionally fictive and reportedly true, I examine the conceptual space that “monster” occupied in England from the mid-sixteenth century to the beginnings of the eighteenth century. Early Modern works such as *The Tempest*, *Richard III*, *Volpone*, *The Duchess of Malfi* offer examples of the monstrous and monstrous discourse. Here these verbal patterns vary in their representation of the monstrous, ranging from how the monstrous becomes associated with a measure of degree, or as a representative of the wholly repulsive and abhorrent, or as terrifying and previously un-conceived, or as a demonstration that exhibits the inner and unseen horrors of the imagination. Analysis of the conceptual space of published “discourses” (some appearing as broadsides, some in medicinal books, some in ballads) serves to contextualize my literary examples of the monstrous. Patterns in the discourses of reiterative terms, data and explanatory allegories delimit and create that intellectual space of this period. I then conclude by inquiring what revisions certain concepts (such as the “normal” or the “human”) undergo after exposure to the “monstrous.”

**John Mulligan**

*Advisor:* Sanford Freedman

**Recurring Violences: the Immanent Affinities of Goethe, Benjamin, and Barthes**

Goethe’s two novels *Elective Affinities* and *The Sorrows of Young Werther* provide the two twentieth-century commentators Walter Benjamin and Roland Barthes opportunity to formulate specific concepts (the Absolute in the finite, for Benjamin; the extra-lingual, for Barthes) in their theories of art. Benjamin’s essay, “Goethe’s *Elective Affinities*,” engages in a metaphysical analysis of the novel whose continuation of previous Romantic critiques of Kantian aesthetics is informed by Benjamin’s subscription to modern Judaic theology, and this unique amalgamation allows the critique to draw out a full teleological meaning from the novel. The post-structural schema of Barthes’ *A Lover’s Discourse* isolates highly individuated moments in the discursive field of love, and relies greatly on a vital affirmation it finds in *Werther* to ground extra-lingual figures. My own readings of these novels borrow and diverge from Barthes’ and Benjamin’s to lesser or greater degrees: I argue that *Werther* is a deeply affirmative novel that centers itself around the inexpressible, while *Affinities* enacts a complete and permanent dissolution of meaning. Though both of these critics make very similar uses of the two novels, my readings find fundamental and important differences between them.

**David Squires**

Advisor: Sanford Freedman

### **Dwelling in the Antipodes: Exploring Umberto Eco's Fiction**

In my thesis I examine the theoretical implications of the five fictional works of Umberto Eco, focusing particularly on *The Name of the Rose*, *Foucault's Pendulum*, and *The Island of the Day Before*. As a preeminent theorist of the past thirty years, Eco-as-novelist negotiates a unique boundary, exhibiting aspects of his critical work within his fictional settings. One such aspect I discuss is the strategy of indirection, wherein a character aims obliquely to his or her target. The use of indirection, particularly in *The Name of the Rose*, leads Eco's characters to perceive a fundamental instability and disunity in the world around them. This instability is exemplified by the concept of intertextuality – an interconnectedness between all texts that traps knowledge within an infinite labyrinth. *Foucault's Pendulum* presents the dangers of falling into this labyrinth, as the characters slowly become ensnared in the paranoia that everything around them conceals a hidden meaning. Ultimately they transcend this web, and in such a way as to suggest the prospect of multiple worlds. I discuss this possibility in relation to all the novels, focusing on elements such as identity and creation in regards to fictionality.

**Eric Charles Williams**

Advisor: Steven C. Dillon

### **Voyage to the Mean Streets: A Study of Tradition and Violent Redemption in Rossellini, Fellini, and Scorsese**

This thesis examines the influence of Roberto Rossellini and Federico Fellini on American director Martin Scorsese's first major film, *Mean Streets* (1973). Though Scorsese acknowledges the profound influence of Italian cinema, critics have written little about it. *Mean Streets* is arguably the purest example of that Italian influence. The thesis considers how the character Charlie struggles internally with a redemption through violence that we see in Rossellini's postwar films *Stromboli* (1949) and *Francesco, Giullare di Dio* (1950). Scorsese also continues the argument made by Rossellini in *Europa '51* (1952), which examines the role of St. Francis in contemporary society and maintains that he would be accepted not as saint but insane. The thesis then analyzes how *Mean Streets* mirrors Fellini's *I Vitelloni* (1953). Both films follow immature adults through a world governed by redemption and strict moral conventions, while Fellini's alter-ego character struggles with moral crises similar to Charlie's. Scorsese's filmmaking does not simply imitate these Italian works; it builds on their influence, and makes *Mean Streets* both distinctly American and at home in Italian cinema.

## French

**Mario Furloni**

*Advisor:* Kirk Read

### **La Fidélité Révélatrice : La Poétique et la Politique de la Traduction**

A study on the various theories constructed around the concept of translation and their implications in the practice of this disputed art, the thesis explores some of the problems implied in the very act of translating, such as the question of fidelity to the text source, literality, interpretation, and the limits to the translator's freedom. Drawing from the works of linguists, philosophers, authors of literature, and professional translators, I analyze the transformations and deconstructions imposed upon the classical concept of translation throughout the evolution of western philosophical and literary thought, as well as the divergences that are still present in modern concepts of the task of the translator. The thesis proceeds from large historical and philosophical concepts into a detailed linguistic analysis of concrete examples of translation of literary works, one of which shall be my own.

## Geology

**Erin C. Beirne**

*Advisor:* Beverly J. Johnson

### **A Geochemical Investigation of Organic Matter Composition, Deposition, and Preservation at Sprague Marsh, Phippsburg, Maine**

To better understand the organic geochemical signal preserved in salt marsh sediment cores, an investigation into deposition and incorporation of modern terrestrial organic matter into the soils at Sprague River Marsh, Phippsburg, ME, was conducted. Quadrats (2m x 2m) were set up along three east-west transects across the northern end of the marsh. From each quadrat, elevation was determined, % plant biomass was estimated and surface sediments were collected for carbon isotopic analysis and soil salinity determinations. *Juncus gerardi*, a C<sub>3</sub> plant with variable isotopic values, was sampled from each of the quadrats where it grew and analyzed for carbon isotopes to evaluate the influence of surface soil salinity on carbon isotope fractionation. This information was used to interpret organic geochemical data from two sediment cores taken from the marsh in June 2004. An offset between living biomass and soil organic matter was observed in % cover and isotopic data. Downcore geochemical analyses showed strong agreement between trends and stratigraphy. However, d13C trends alone were insufficient to uniquely identify peat units as representing specific marsh zones. The modern study functions to determine the validity of applying isotopic and structural relationships on the marsh surface to downcore analysis.

**Kristin McCurdy**

*Advisor:* Phaedra Upton

### **Three-Dimensional Thermal Investigations of Acadian Tectonic Models Constrained by Geochronology in Central Maine**

Reconstruction of tectonic setting in Maine during the 423-385Ma Acadian Orogeny is controversial and deficient. A lack of collisional indicators such as ophiolites and blueschists forces researchers to interpret Acadian tectonics through more abstract deformational processes. Innovative constraints are obtainable through investigation of the thermal evolution evidenced by tectonic models in Appalachian literature. Two tectonic models with differing subduction geometries have been chosen and the thermal evolution of each is modeled using a three dimensional code to solve the heat flow equation (FLAC<sup>3D</sup>). The east-dipping model suggests lithospheric delamination occurred causing upwelling of asthenospheric material and regional metamorphism. Advection of hot material into the cool upper crust affects the thermal regime and is driven by surficial erosion. The west-dipping model depicts flat subduction of buoyant continental lithosphere which pinches out hot material caught between the two lithospheres. A cooling event follows resulting from advective processes during the collision. Within each geometric framework, the rate, depth and size of the asthenospheric displacement, crustal uplift rates and exhumation are varied and the effect on the thermal evolution of the system observed. Resultant mid-upper crust temperatures are evaluated against the distribution of metamorphic isograds, and metamorphic and cooling ages from central Maine.

**J. Brooks Motley**

*Advisor:* Michael Retelle

### **Sedimentation in Linnévatnet, Svalbard, During 2004-2005: A Modern Process Study using Sediment Traps**

This thesis examines modern sedimentation processes in proglacial Linnévatnet (Lake Linné), Svalbard, as part of a multi-faceted calibration study aimed at interpreting Holocene climate change in the region from the lacustrine sediment record. Staggered deployment of cone-type sediment traps for three different, but overlapping, time periods over the course of one year allows for analysis of sedimentation on a seasonal basis. "Year-long," "spring," and "summer" traps were deployed in August, 2004; May 2005; and July 2005, respectively. All traps were retrieved in August 2005. These traps were placed in five different locations in the lake from delta proximal to deep basin to record spatial variability. Sediment flux rates were determined based on dry mass. Sediments from the traps were also sub-sampled in high resolution and analyzed to determine grain size with a Coulter LS 200 particle analyzer; and chemical composition using an Itrax X-ray fluorescence core scanner. The analyses reveal important spatial and temporal variations in sedimentation over the study period. These results are analyzed in the context of local

meteorological conditions as recorded by a remote weather station. Total sediment flux and grain-size results are compared with those of a similar study on Linnévatnet in 2004. Variation between these two years, when related to differences in meteorological conditions show important links between climate and sedimentation which can be used to interpret the Holocene sediment record contained in the lake.

**Lauren Perreault**

*Advisor:* Michael Retelle

### **Mineralogical Analysis of Changes in the Contribution of Primary and Alternative Source Sediments during the Late Holocene to Linnévatnet, Spitsbergen, Svalbard**

Changes in the Arctic climate system during the late Holocene have fostered interest in the study of proxies that record long term variations in Arctic climate. Laminated lacustrine sediments contain records of annual deposition that can serve as valuable proxies for climate change. This study uses mineralogy to identify changes in the source of sediments entering Linnévatnet, a high Arctic lake in Svalbard, to examine climate change in the late Holocene. The climatically sensitive sediment sources include a major proglacial river; alluvial fans, solifluction lobes and the meltwater stream from a small cirque are secondary sources. Coarse fragment analysis, surface core and sediment sample collection were conducted in the field as a part of the 2005 Svalbard Research Experience for Undergraduates Program. Source rock, surficial sediment samples, and core subsamples are analyzed for mineral content by grain size fraction using x-ray diffraction. Changes in mineral compositional and grain size down core are related to changes in source sediment and in turn to climate change during the last several centuries. Observed increases in grain size and the contribution of alternative sources ~150 years ago may correspond to climatic changes associated with the end of the Little Ice Age.

## History

**Erin Culbreth**

*Advisor:* Michael Jones

### **"Rough Hearts": A Study of the Christianization of the Anglo-Saxons from 410 to 664 C.E. as Viewed in the Context of the Transformations of the Christian Orthodox Church and the Western Roman Empire**

The early medieval period in Europe witnessed the rise of a new Christian church, which followed in the wake of the decline of Roman imperial power in the West. The earthly city of Rome, in the midst of a sharp moral decline, was bolstered by the rise of papal power,

organizing Christians across Europe. Additionally, the transformation of the early Christian church into a world power was directly influenced by the political situation of this time period. The despotic regulation of the Roman emperors was passed on to lesser, barbarian kings of peoples in the process of breaking free from the chains of Roman supremacy. Out of this context comes the story of the Anglo-Saxons – a conglomeration of Germanic tribes searching, like their neighbors, for new land and autonomous rule. My thesis focuses on the changing global politic and economy within western Europe, by concentrating on these new occupants of Britain. For, the conversion of the Anglo-Saxon kings to Christianity in the beginning of the seventh century was a direct consequence of their desire to be incorporated into European politics, and for several of these influential kings, to be the singular ruler of the British Isles.

**Benjamin Haley**

*Advisor:* John Cole

### **The First Debate: Richard Price, Edmund Burke, and the American Revolution**

It is a general but fundamental misconception that because Edmund Burke and Richard Price were both opposed to Britain's war against America, that their political philosophies were in, or close to, agreement. On the contrary, the philosophical differences that Burke would highlight so emphatically between himself in and Price in 1790 with his *Reflections on the Revolution in France* were just as evident in the 1770s. Furthermore, given Burke's support for the American rebels and his later condemnation of the French Revolution, there has been a scholarly debate concerning a "revolution" in Burke's thinking to explain this apparent about-face in his attitude toward revolutions. Upon examination, it becomes quite evident that Burke was never inconsistent and that his principles remained steady throughout his career. Though the Burke-Price debate during the American Revolution was far more muted, and therefore usually overlooked or over-generalized, the broad and deceptive sphere of politics ought not to mask the inherent and irreconcilable philosophical disparities between the two men.

**Margaret Joyce**

*Advisor:* Robert Allison

### **"When Nails Don't Hold": An Analysis of How Jesus Hung on the Cross**

The tension between science and religion in modern society has illuminated the tenuous nature of religious "fact." Forensic pathologist Pierre Barbet conducted medical experiments nailing cadavers to crosses to determine the cause of Jesus' death. He concluded that it was not anatomically possible that Jesus was nailed to the cross through the hands as represented in Christian tradition; the cause of death was most likely bloodless – asphyxiation or cardiac arrest and shock. The possible untruth of such a deeply

ingrained idea prompts many questions about how a culture interprets its own religious heritage: How did the traditional account of crucifixion promote Christian doctrine? Why are scientific details about Jesus' death important to modern society? Can tradition survive in the face of modern, scientific inquiry? Can faith hold when nails don't? To address these questions, I argue that the bloody details of the crucifixion originate in the vital symbolism of blood in the Eucharist. Early Christians understood Jesus' death as a Passover sacrifice, fulfilling imagery of the pierced suffering servant of the Old Testament. The implications of Barbet's findings not only test strength of Christian faith, they undermine the axiom that Jesus' death was a sacrifice.

**Michael Metzger**

*Advisor:* Margaret Imber

### **Command Responsibility: The Search for a Standard**

That breaches of accepted international law constituting war crimes are being committed by American soldiers abroad is undeniable. While it is universally acknowledged that individuals who commit war crimes with their own hands are responsible for their actions, the question remains, when are others in the chain of command also responsible for those breaches of the laws of war? This question has led to intense debate because, on the one hand, we want to satisfy our natural desire to reduce war crimes by casting a wide net when determining who to hold responsible for their commission, while on the other hand we want to retain our ability to effectively protect the nation and wage war. This thesis attempts to answer the question of when criminal responsibility, in the form of "principle to the crime" status, should be attached to a commander's failure to discharge his command duties. First it examines the origin of the Command Responsibility doctrine and its application throughout history. Then it explores the standard that is currently used to determine culpability, and finally it outlines an ideal standard that attempts to balance the conflicting desires discussed above.

## **Interdisciplinary Studies**

**Matthew Lipstein**

*Advisor:* Todd Kahan

### **New Perceptions In Music: Evidence of Deafness to Change**

Change blindness is the finding that people often fail to notice rather large and obvious changes in their visual environment under a variety of conditions. Recently, an auditory analog to change blindness (change deafness) for speech showed that people are unaware of changes in speaker for spoken word lists (Vitevitch, 2003). Change detection studies for music, while they exist, have never explicitly examined change deafness. The current



research attempted to answer the question: Does change deafness extend to musical stimuli? Participants listened to 10-second long alternating versions of musical pieces which were either identical or had a slight change in either tempo or instrumentation. Between the clips participants heard either silence or white noise. The results of this study will help elucidate the way in which musical information is represented in the mind, and the types of changes that are, or are not, detected in music.

**Aliza Luft**

*Advisor:* Emily Kane

### **Bridging Across Diversity in Support of Human Rights: How Holocaust Education Contributes to Building Social Capital**

Social capital is declining in the United States as people interact in networks less, creating fewer norms of reciprocity and opportunities for generalized trust. Moreover, globalization has resulted in great disparities between dominant and subordinate groups in society. Social integration is far from the reality of global economic integration. Instead, asymmetries of globalization cause further isolation for minority groups and those who historically suffer from social exclusion. Furthermore, when resources are scarce, in-group tendencies rise and society becomes more divided and its members less trusting and tolerant of those whose cultural practices differ from their own. As globalization continues to influence our world, it is likely cultures will clash unless bridging social capital is built through increasing opportunities for interaction. Using theories of educational sociology, I hope to show how teaching about histories of hatred and helping students get involved in counteracting prejudice is one way to increase interaction among diverse youth. Specifically, I intend to demonstrate that Holocaust education teaches important lessons that help bridge cultures to form tolerant communities that are accepting of difference. This might then increase networks that cut across social divisions, help form norms of reciprocity and generalized trust and eventually, boost social capital.

**Anna Schechter**

*Advisor:* Georgia N. Nigro

### **The Intersection of Art, Disability, and Community: A Local Case Study**

This thesis examines the intersection of art, community, and disability within an artists' workshop in mid-coastal Maine. Founded in 1978 for adults with developmental disabilities, this day program counters a former era of institutionalization and seclusion common for people labeled "disabled." Located in a small Maine community, this progressive program provides the opportunity for individuals with disabilities to create and sell what they are passionate about—art. Using a multi-method research approach, I explore the mechanisms through which the artists gain a sense of empowerment. A content analysis of newspaper articles acts as a historical account of public perception and

local understanding. A participatory action research method, called photovoice, allows the artists to use photography as a way to record and convey what is important to them. The photographs act as both a visual narrative and valuable resource for initiating later narrative inquiry. Lastly, semi-structured interviews with the artists, families, staff, and community members provide insight into personal experience. This ethnographic case study reveals specific paths toward empowerment and thereby contribute to greater understanding, support, and respect for individuals with disabilities.

**Laura Tomaselli**

*Advisor:* Steven Dillon

### **Three Films**

My thesis is a creative work exploring intersecting themes within three separate films. Each film centers on a single protagonist that is searching for someone important. A vague reading of the greater themes that each of these missing persons embody would be Love, Family, and Religion. However, initial meanings typically shift towards another more complicated net of ideas, so the end result is still uncertain. Read structurally, these films each represent a challenge to execute; there is a silent film, a mockumentary, and a somewhat straightforward narrative. My overall goal with this thesis is to produce three films strong in construction and content that simultaneously stand alone and work together.

## **Mathematics**

**Nathaniel Stambaugh**

*Advisor:* Peter Wong

### **The Use of Symmetry in Physics**

This thesis has two major components, both of which fall under the subject of symmetry in quantum mechanics. The first component investigates Noether's theorem as manifested in angular momentum. Noether's hypothesis is that all "smooth" symmetries (like rotations and translations) correspond to conserved physical quantities (like energy or momentum). In this thesis I study this correspondence with respect to angular momentum. To do this rigorously, the study includes an introduction to Lie Groups, the mathematical study of symmetry within physical systems. The study of Lie Groups naturally leads to Lie Algebras. Finally, the orthogonal transformations associated with spherically symmetric systems (a Lie Group) are shown to be associated to angular momentum operators familiar from quantum mechanics (a Lie Algebra). The second component uses the power of symmetry to study the Helmholtz Equation. This investigation was born out of an attempt to solve the Schrödinger Equation for an infinite equilateral triangular well. This

motivated the search for solutions inside other regular polygons (including the limiting case of a circle), where the solutions are not necessarily separable, or even analytic! Our approach attempts to describe the solutions using the symmetry of the region, avoiding the use of assumptions.

## Neuroscience

**Sam Golden**

*Advisor:* John Kelsey

### **Inhibition of Extracellular-signal Regulated Kinase (ERK) in the Ventral Tegmental Area (VTA), but Not the Nucleus Accumbens, Slows the Development of Nicotine-Induced Locomotor Sensitization in Rats**

Many of the persistent and habitual drug seeking behaviors associated with drug addiction are presumed to be modulated by the nucleus accumbens (NAc), via direct or indirect activation of the mesolimbic dopamine (DA) pathway originating in the ventral tegmental area (VTA). For example, nicotine is believed to exert its addictive effects by activating acetylcholine receptors on the cell bodies of VTA neurons. Unfortunately, the molecular basis of this process is poorly understood. Recent evidence has implicated the extracellular-signaling regulated kinase (ERK) signaling cascade in the development of addictive behaviors. One such behavior is known as locomotor sensitization, in which repeated administration of nicotine results in progressive increases in locomotor activity. To further elucidate the possible role of ERK in the development neuroadaptations that lead to locomotor sensitization, bilateral infusions of the selective MEK/ERK inhibitor U0126 (2.0 µg/hemisphere) into the NAc or VTA were given in conjunction with five once daily injections of nicotine (0.4 mg/kg, s.c.). It was found that intra-VTA, but not intra-NAc, inhibition of the ERK cascade slowed the development of locomotor sensitization. Thus, it appears that activation of the ERK signaling cascade in the VTA may be critical to the development of nicotine-induced addictive behaviors.

## Philosophy

**Jeremy Fisher**

*Advisors:* David Cummisky and Casey O'Callaghan

### **The Price of Intellectual Property**

Despite the fact that intellectual property accounts for nearly half of the U.S. GDP, there is fundamental uncertainty regarding the ontology of intellectual property entities. This thesis argues that taking the ontology of intellectual property entities seriously has significant implications for recent rights-based defenses of intellectual property, and thus

for public policy. The first section of the thesis develops a robust metaphysics of intellectual property and, on the basis of this metaphysics, rejects recent rights-based defenses of intellectual property. The second section develops a contemporary consequentialist defense of intellectual property rights. The final section considers the significant policy implications of a consequentialist approach to the justification of intellectual property.

## Psychology

**Joanna Good**

*Advisor:* Kathryn Graff Low

### **The Effects of Using a Pedometer-Based Physical Activity Intervention Program in a Primary Care Facility**

Due to a national epidemic of obesity, physical activity interventions programs are gaining widespread attention in the United States. The pedometer has been identified as a useful intervention tool for motivating people to increase physical activity and for accurately measuring patterns of daily activity. The behavioral change technique of Motivational Interviewing (MI) has also been shown to increase physical activity and to raise retention rates in such intervention programs. Additionally, the primary care setting has been identified as an advantageous setting to implement these types of programs. This study recruited a sedentary population (N=29) with the help of physicians at a local primary care practice and implemented an 8-week pedometer-based motivational interviewing program. This study looks at short and long-term effects of the program on physical activity and on the physiological and emotional wellbeing of the participants. Blood pressure, resting heart rate, Body Mass Index, energy and mood were measured at each follow-up. Our goal is to build on the findings regarding pedometer programs, MI, and interventions in primary care settings by using a case-control approach to better understand the impact on physical activity levels and wellbeing of combining the three interventions.

**Keith Hengen**

*Advisor:* Todd Kahan

### **An Investigation of Retrospective Prime Clarification in the Retrieval of Newly Learned Information**

Center-surround theory and retrospective prime clarification describe distinct attentional mechanisms used to help people retrieve weakly coded information from semantic memory. This situation, popularly referred to as a "tip-of-the-tongue" phenomenon, can be

induced in controlled laboratory conditions when a prime and target consist of newly learned information or when the prime is presented rapidly and masked. Inhibition, or "tip-of-the-tongue," is then observed between semantically related items that are not well known. Center-surround theory's explanation suggests that when attention is focused on a weakly activated piece of information, related information located in surrounding semantic space is inhibited so that the desired meaning stands out. In contrast, retrospective prime clarification attributes the delayed response to the process of disambiguating the prime using the clues provided by the target. Previous research by Kahan (2000) indicates that prime clarification offers a more parsimonious explanation of data when a backward masking task is used. The current study attempts to expand upon prior research by testing these theories in a task that requires participants to retrieve newly learned information from semantic memory.

**Andrea S. Lichtman**  
*Advisor: Amy Douglass*

### **Post-identification Feedback: Manipulating Beliefs about the Number of Eyewitnesses and Measuring Credibility**

Misidentifications by highly confident witnesses are a leading cause of the conviction of innocent defendants. Inaccurate witnesses can be made confident by post-identification feedback suggesting that their identification was accurate (i.e., confirming feedback). Experiment 1 was conducted to explore whether feedback affects some witnesses more than others. Participants were led to believe that they were either the only witness (solo identification context) or one of several witnesses (multiple identification context) viewing a video and making an identification from a target-absent lineup. Following their identifications, participants were given either confirming feedback or no feedback regarding their identifications. Participant-witnesses' responses were measured on testimony-relevant dependent variables including retrospective confidence. Results provide information about the potential for identification context to moderate the effects of feedback. In Experiment 2, participant-observers viewed videotaped testimony given by Experiment 1 participant-witnesses who had received either confirming feedback or no feedback and rated each witness's credibility. This study marks the first attempt to empirically evaluate the testimony of witnesses exposed to a feedback manipulation. Results provide important information about the power of feedback to affect actual testimony.

**Catherine Reedy**

*Advisor: John Kelsey*

### **Site of Therapeutic Action for Caffeine in an Animal Model of Parkinson's Disease**

Research has suggested that adenosine receptor antagonists are therapeutic in Parkinson's Disease (PD) either for their interaction with L-DOPA in the dorsal striatum (direct pathway) or their inhibition of the overactive striatal-pallidal (indirect) pathway at the striatum and the external segment of the globus pallidus (GP<sub>E</sub>). To test for the primary therapeutic action of adenosine antagonists, we measured the behavioral effects of local infusions of caffeine, an A<sub>1</sub>, A<sub>2A</sub>, and A<sub>2B</sub> antagonist, into both the dorsal striatum and the external segment of the globus pallidus (GP<sub>E</sub>) in rat models of PD. Unilateral 6-hydroxydopamine (6-OHDA) lesions in the medial forebrain bundle (MFB) were used to produce unilateral stepping deficits characteristic of PD in 20 rats. When injected into the GP<sub>E</sub>, caffeine significantly improved stepping of the contralateral paw compared to saline ( $p < 0.0009$ ), with 2.0 and 4.0  $\mu\text{g}/\mu\text{L}$ , but not at 1.0  $\mu\text{g}/\mu\text{L}$ . Data were collected this semester on caffeine's behavioral effects when injected in the striatum. The need to understand where and how adenosine antagonists work therapeutically in PD becomes especially exigent as these drugs enter human testing. Adenosine antagonists could limit the dose or onset of therapeutic drugs with more debilitating side effects, such as L-DOPA.

## Sociology

**Kara Dietrich**

*Advisor: Emily Kane*

### **Political Apathy and the Mobilization of Young Voters: A Case Study of Rock the Vote's Use of Strategic Framing to Incite Political Participation**

The cornerstone of a participatory democracy is voting, especially in a country like the United States predicated on the "We the People" ideal. However, statistics indicate that Generation Y—the current segment of 18-29 year-olds—votes less than previous generations of young adults, sometimes as low as 15 percent in midterm elections. Many researchers cite evidence that low voter turnout is indicative of a broader youth political apathy trend. While the causes for and implications of this trend have been debated in the literature, many organizations have emerged over the past two decades utilizing various tactics to encourage participation. This thesis examines the youth voter mobilization movement from the perspective of Rock the Vote, a veteran organization that uses the entertainment community and youth culture in its high-profile campaign to recruit new voters and incite political participation. Extension of symbolic interactionist perspectives and social movement literature about strategic framing provides the theoretical framework while a case study of the organization and qualitative interviews

with voting-age youth provides the empirical base. Analyses explore key frames employed by Rock the Vote, specifically the use of empowerment strategies, youth-relevant issues, and sexuality to popularize voting and incorporate it into mainstream youth culture.

**Katherine Gatti**

*Advisor:* Sawyer Sylvester

### **A Critical Historical Analysis of Case Law and Commentary in Forensic DNA Admissibility**

Science and law sometimes have contradictory goals—science seeks the truth, the law serves justice. The constantly evolving nature of science makes it difficult to incorporate it into the legal system. Some argue that DNA has endured extensive scrutiny among experts. The theory behind DNA, that no two humans except twins share the same genetic information, has rarely been disputed. It is the application of the technique to the forensic field which has raised objections. Since one of its first appearances in the courtroom where a judge declared forensic DNA evidence to be “the single greatest advance in the ‘search for truth’...since the advent of cross-examination,” forensic DNA evidence has seen changing standards of admissibility. In 1993, the Supreme Court decided *Daubert v. Merrill Dow Pharmaceuticals*, making the role of federal judges an active “gatekeeper” in evaluating the admissibility of scientific evidence. But, even judges who have not applied the *Daubert* standard struggle to understand the technical fields of biology and population genetics that comprise DNA identification. This thesis explores significant appellate court cases which contribute to the admissibility of DNA evidence and particularly any influence the *Daubert* standard has had on the evolution of judicial thought on DNA evidence.

**Ashley Wentworth**

*Advisor:* Heidi Chirayath

### **Are All White Jackets the Same?: A Comparative Analysis of the Humanitarian Attitudes and Behaviors of Osteopathic and Allopathic Physicians**

Each year 45.5 million nonelderly Americans lacking health insurance rely on the humanitarianism of physicians, both allopathic (MD) and osteopathic (DO), to obtain healthcare. This thesis research addresses the questions of how the humanitarian attitudes and behaviors of DOs compare with those of their allopathic counterparts and what social and structural factors influence this humanitarianism. The Humanitarianism of Osteopathic Physicians (HOP) survey was mailed to 700 U.S. DOs and data from the 175 respondents was combined with that collected by Chirayath (2002) from MDs. It has been suggested that DOs, by virtue of their’s profession’s holistic philosophy are more involved in social concerns than allopathic physicians, yet Peppin (1993) highlights the



lack of supporting evidence. Similarly, early analysis reveals that only one component of humanitarian attitudes, feeling able to make an impact on meeting the needs of the medically underserved, significantly differed between MDs and DOs. However, regarding humanitarian behaviors, MDs are more likely to think about patients when not in the office, while DOs spend a larger percentage of their work hours providing charity care. Due to the lack of comparative research of physician humanitarianism, the findings of this research significantly contribute by examining professional ideologies and individual behaviors.

**Kimberly Whipkey**

*Advisor: Emily Kane*

**“Jobs...Yes, but with Dignity!” Alternative Organization for and by Women: A Case Study of “María Elena Cuadra”**

In response to economic, political, cultural, and social situations brought about through globalization- and neoliberal-based processes, Central American women workers have been engaging in diverse forms of protest and self-organization to articulate their demands. Free trade zones, which contain garment export factories referred to as “*maquilas*,” represent a frequent locus of female contestation. Although free trade zones provide women with formal jobs and much-needed wages, factory employment can also confront women with harsh working conditions, violate labor and human rights, and pay meager salaries. Women workers, moreover, carry additional labor concerns that often lie outside the traditional gamut, including maternity rights, childcare services, and sexual harassment. Recognizing the multiplicity of issues associated with free trade zone employment, women’s organizations such as “María Elena Cuadra” (MEC) of Nicaragua are mobilizing women in order to comprehend and defend their rights. This thesis examines how MEC’s practices and programs address the gender-based complexities of *maquila* sector employment and how they transcend the traditional boundaries between public and private spheres. Through a case study approach that includes qualitative interviewing, content analysis, and field research, findings indicate that training, education, and networking are fundamental in raising the consciousness and status of Nicaraguan women workers.

## Spanish

**Adam Jaskievic**

*Advisor:* David George

### **El Cine Queer en España, 1977-2005**

After the death of Francisco Franco in 1975, Spain experienced an unprecedented sexual, legal, and popular cinematic revolution that resulted in a gradual eradication of national censorship of cinema, the decriminalization of homosexuality, and the proliferation of sexual discourse in mass media. As a consequence, the traditional patriarchal structure of the family unit was challenged, often by depicting homosexuality within family structures in popular cinema. For the first time in Spanish history, gay men, lesbian women, and transsexuals were positively represented in mainstream cinema and shown to be acceptable members of the Spanish family. This cinematic trend to include all sexualities when representing and defining the family unit continued from 1975 to the present. This thesis analyzes how contemporary Spanish cinema simultaneously documented and catalyzed the nation's gradual social acceptance of homosexuality, especially with regards to family structure. It examines a selection of films from the past thirty years that feature themes of homosexuality and transsexuality in order to understand 1) the impact the newly liberalized legal code of post-Franco Spain had on the representation and acceptance of alternative sexual identities; and 2) how the cinema not only problematized, but also culturally redefined what constitutes an acceptable family unit.