

# Bates College

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David R. Al-Ibrahim

SPANISH

Emma R. Weisser

\*Denotes a combined thesis

\*\*Denotes a double major with 2  
separate theses

## AMERICAN CULTURAL STUDIES

**Emma Brown-Bernstein**

*Advisor:* Joseph Hall

### **The Implementation and Effectiveness of Maine Legislative Document 291**

In a world where popular culture and mainstream media are littered with offensive images and representations of Native peoples, there have also been efforts by Native and non-Native peoples to slowly transform these seemingly engrained stereotypes. One of the efforts that sought to address this ongoing discrimination was an education law passed in 2001 in the Maine State Legislature, Legislative Document 291. LD 291 requires that Maine Native history be incorporated into school curricula in grades K-12. The stated goals of the law, as articulated by the Wabanaki Studies Commission, the group that oversaw implementation of LD 291, are that students will gain a greater respect and understanding of the Wabanaki people, the consortium of the Native tribes of Maine. This thesis studies how this law was implemented, and the ways in which, thus far, we can evaluate how effective the new curriculum has been in transforming how students think about and relate to Native peoples.

## ANTHROPOLOGY

**Amy L. Lareau**

*Advisor:* Elizabeth Eames

### **“Staging School” in Rural Kwazulu-Natal: An Ethnography**

In the high school of a small rural community on the northeastern coast of South Africa, Zulu-speaking students are expected to learn core subjects in the unfamiliar language of English. This global language offers a promise of upward social mobility, but without regular exposure to English in nonschool contexts, teachers and students struggle to keep up with curriculum initiatives. In the wake of apartheid and colonialism, rural black schools face significant disadvantages. A scarcity of school resources and low levels of English-language competency have resulted in low matriculation pass rates. Yet whether or not state-mandated educational outcomes have been achieved, students and their families structure their lives around the daily routine of school and achieve a connectedness and shared faith in students' progress. Rather than see the daily practices of ironing and shoe-shining as wasted, empty efforts, I use the fields of educational, linguistic, and interpretive anthropology to make sense of such attention to aesthetic detail.

Additionally, I explore the ways in which imitative language practices allow for a contradictory but simultaneous movement toward and distancing from the dominant power structures associated with its mastery. I acknowledge subtle, subversive resistance as a means of securing humanity in the face of dehumanizing racial and cultural inequality.

**Julia T. Merriman**

*Advisor:* Loring Danforth

### **Envisioning Communities: Perceptions of the Somali and Somali Bantu Diasporas through Photography**

In this honors thesis I examine the politics of representation and the construction of identity in museums. I analyze two art exhibitions, *The Somali Diaspora: A Journey Away* and *The Somali Bantu Experience: From East Africa to Maine*, and consider the discourse on curatorial consulting in creating cultural exhibitions. I examine historical and contemporary issues of appropriation and “othering” in museums exhibitions, as well as identity in diaspora communities. I discuss the historical background of the ethnic Somali and Somali Bantu communities, their migration to Lewiston, Maine, and the transition they have made to life in Lewiston. What do these exhibitions mean to the different communities? How do these exhibitions represent different cultures and identities? Using these exhibitions as case studies, I explore the new ways in which museums can engage communities and construct and reflect on identities through photographic representation.

**Jacob D. Nudel**

*Advisor:* Charles Carnegie

### **Disputing Development: The Politics of Progress on Kilimanjaro**

Anthropologists have developed an extensive critique of the concept of development. Many scholars argue international institutions—states, corporations, and nongovernmental organizations (NGOs)—have invoked “development” to justify infringement on postcolonial economies and resources. During the summer of 2009, I conducted ethnographic research in a village near Mt. Kilimanjaro in Tanzania with the Minjeni Women Group Trust, a small NGO. I observed that Tanzanians have distinct notions of what development is and what their future should look like. I studied how these visions of development arose in response to Tanzania’s history as a nation-state, especially under Julius Nyerere’s African Socialist regime and the subsequent transition to open-market liberalism. In the context of an increasingly interconnected world, individuals and groups of people act in complex and often

competitive ways as they attempt to assert their own interests in the development process. I include reflections on the roles of volunteers and researchers in developing countries.

## ART AND VISUAL CULTURE

**Joseph C. Williams**

*Advisor:* Rebecca Corrie

### **The Cappella dei Signori and Sienese Pride**

The government of fifteenth-century Siena never commissioned second-rate work for their communal chapel. Completed in 1407 in the heart of the Palazzo Pubblico, the Cappella dei Signori defied economic decline and government instability. Siena proudly adorned the chapel with a venerated altarpiece by Simone Martini (c.1284 – c.1344) and a fresco program by Taddeo di Bartolo (c.1363 – c.1422) including saints, prophets, virtues, and scenes from the *Last Days of the Virgin*. Here was a chapel for the people as well as the leaders, a site for the most important feast days, and even a regular sanctuary for Pope Gregory XII, pope-elect for the resolution of the Western Schism, during his brief stay in Siena. My thesis develops a statement of purpose for the chapel's artistic program. The unity of Taddeo's fresco scheme presents a tempest of different agendas for the city of the Virgin in its darkest hour. By addressing these agendas, we may attempt to excavate the layers of meaning crucial to the inhabitants of the commune in 1407.

## BIOLOGICAL CHEMISTRY

**Nicholas J. Swerdlow**

*Advisor:* Paula Schlax

### **The Translational Regulation of rpoS in *Borrelia burgdorferi***

The alternate sigma factor rpoS ( $\sigma^S$ ) controls the expression of key virulence factors in *Borrelia burgdorferi*, the causative agent of Lyme disease. These virulence factors facilitate the bacterium's transfer from the *Ixodes* tick vector to a mammalian host and subsequent mammalian infection. The regulation of the rpoS gene is dependent upon the ability of the small ribosomal subunit to bind the 5'-untranslated region of the mRNA. Our research investigates the effects of the long untranslated 5' leader sequence on translational initiation. Ribosome binding studies using nitrocellulose filter binding indicate that the affinity of the small

ribosomal subunit to a short (-51 nt) rpoS mRNA ( $K \sim 4 \times 10^7 \text{ M}^{-1}$ ) is slightly higher than the affinity to a long (-171 nt) transcript ( $K \sim 2 \times 10^7 \text{ M}^{-1}$ ). Additionally, the fraction of mRNA that binds to the ribosomal subunit depends on transcript length. Translational efficiency assays demonstrate that the translation of the short transcript is significantly more efficient than the long. Our results suggest that the long transcript folds into a structure that inhibits translational initiation. By understanding the translational initiation and regulation of this virulence gene we will contribute to the understanding of the life cycle of this important pathogen.

## BIOLOGY

**Stuart K. Ryan**

*Advisor:* William Ambrose

### **Growth of the Hairy Cockle (*Clinocardium ciliatum*) Across the Barents Sea Polar Front: In Response to Local and Regional Climate Forcing**

Atlantic and polar water masses meet in the Barents Sea along the Polar Front where benthic abundances are higher due to enhanced primary productivity. We collected the cockle *Clinocardium ciliatum* from a five-station transect across the Polar Front to examine the relationship between water mass and cockle growth and to relate interannual variation in growth to environmental conditions. Samples were sectioned, imaged, and annual growth lines were used to generate an ontogenetically corrected growth index. Cockles incubated in calcein dye, and left on a mooring for one year deposited only one line, proving the annularity of *Clinocardium* growth lines. Preliminary results show that cockles in Atlantic water have higher growth rates than cockles in polar water. *Clinocardium* growth closely follows climate oscillations such as the Arctic Climate Regime Index, indicating that regional climate trends play a large role in bivalve growth. Storm proxies such as precipitation are also positively correlated to *Clinocardium* growth, suggesting that vertical mixing mitigates the quantity of food reaching the benthos. Growth differences between water masses demonstrate that a Barents Sea with more Atlantic water, and warmer conditions will improve bivalve growth with enhanced productivity.

## EAST ASIAN STUDIES

**Ariane L. Mandell**

*Advisor:* Roberta Strippoli

### **Star-Crossed: The Origin, Evolution and Influence of Qi Xi Folklore**

The Chinese festival Qi Xi is based on the myth of a cowherd and the princess of Heaven who fall into forbidden love. Her father forces their separation, but allows them to meet one night a year on the seventh night of the seventh lunar month. This myth has spread throughout East Asia, and the values it expresses – loyal and burning love, the right to choose one's own mate, challenge to patriarchal society, and yet eventual acquiescence to authority – appear frequently in East Asian art, music, film, and literature, and are celebrated in many festivals. The myth emerged to explain a celestial phenomenon in which two stars appear to cross the Milky Way to meet. More recently, the myth is referenced in Western literature, provoking questions about the manner in which vastly different cultures embrace the same story. This thesis explores multiple variations, premodern and modern interpretations, and prominent themes of the Qi Xi legend. It addresses the myth's evolution, persistent popularity even among dramatically changing cultures, and the curious global celebration of a story of questionable rebellion and tragic end.

## ENGLISH

**Christopher G. Carlson**

*Advisor:* Sanford Freedman

### **The Gravity of the Counter-Earth: The Transcendent World Making of *Against the Day***

This thesis approaches Thomas Pynchon's latest novel, *Against the Day*, from a perspective based on Mikhail Bakhtin's work. By using Bakhtin's discussions of dialogism and the interanimation of languages, world-making, the carnivalesque, parody, and space-time, this thesis explores themes of science, anarchism, and historicism in Pynchon's novel. The inclusion of outside perspectives lends the thesis context as Bakhtinian notions are discussed in relation to theorists such as Nelson Goodman, Northrop Frye, Charles Bromwich, and Ian Hacking. Additionally, Pynchon's craft and style are analyzed to approach a definition of his authorial voice and the control that he exerts over his novel. In this way, Pynchon



is used to exemplify the tenets of Bakhtinian theory, and investigate the questions related to the philosophical function and self-perpetuating nature of the novel.

**Alexandra L. Kelly**

*Advisor:* Lillian Nayder

### **From Quack to Hero: The Character of the Doctor in Nineteenth-Century Literature**

Eighteenth-century literature depicts most doctors as little more than self-serving quacks. By the mid-nineteenth century, though, as doctors began to move beyond the skepticism and suspicion with which the public had once viewed them, those depictions are more respectful. By examining representations of doctors in fiction from Charlotte Brontë, Charles Dickens, George Eliot, and Elizabeth Gaskell and placing them in context with medical history and fiction from the eighteenth century, this thesis establishes the changes that occur in those representations and explore the relationship between characters' roles as physicians, surgeons, and apothecaries and their roles within the overall plots of the novels. It finds that medical men in nineteenth-century literature, in addition to being more trusted and more highly esteemed than in eighteenth-century literature, are also allowed a degree of social permeability that was unknown to their predecessors. In eighteenth-century novels, doctors hold an inferior and often subservient position to their patients, but in nineteenth-century novels, medical practice gives doctors easier access to the middle class, allowing them to cross thresholds and pass social barriers that would otherwise have been impenetrable.

**Alexis M. Smith**

*Advisor:* Lavina Shankar

### **Female Longing for Home in the Literature of Jhumpa Lahiri and Barbara Kingsolver**

Barbara Kingsolver's and Jhumpa Lahiri's fiction reveals that longing for home among female immigrants and refugees threatens to eclipse their belonging. While Lahiri's short story collection, *Interpreter of Maladies*, examines how longing for home among Bengali female immigrants precludes their assimilation, Kingsolver's *Homeland* collection examines how Native American women have relinquished their longing for home in order to adapt during times of upheaval. Their novels, particularly Kingsolver's *Animal Dreams* and Lahiri's *The Namesake*, politicize the notion of home, revealing that the burden of domestic longing and homemaking falls most heavily upon women during times of transition and unrest. In this way, Kingsolver's and Lahiri's short stories and novels converse with one

another across cultural and physical boundaries. Because there exists a gulf between the cultural realities afforded to Kingsolver's American-born females and those afforded to Lahiri's Bengali-born, this thesis addresses the disparities between different cultures' expectations for women amidst relocation. Ultimately, this thesis addresses the extent to which a female's personal disposition, and willingness to relinquish certain cultural expectations and longings, dictates the extent to which she can embrace new realities, and essentially, write her own experience of home.

## ENVIRONMENTAL STUDIES

**Michael E. Pickoff**

*Advisor:* Michael Retelle

### **Multi-proxy Organic Geochemical Analysis of the late-Holocene Sediment Record from Meetinghouse Pond, Phippsburg, ME**

This study is a paleoenvironmental reconstruction based on the late-Holocene sediment record from Meetinghouse Pond in Phippsburg, Maine (43°76' N, 69°83'W). The pond has a surface area of approximately 0.03 km<sup>2</sup> with a mean depth of 2.7 m and maximum depth of 6.5 m. The basin has no fluvial inlet, and therefore water input is primarily a combination of precipitation and groundwater sources. Four surface cores, each approximately 50 cm in length and a 3.58 m percussion core were recovered from the study area. Together, these cores archive sedimentation over the last ~1300 years spanning the Medieval Warm Period, Little Ice Age, and Twentieth-Century warming as well as regional anthropogenic inhabitation. A range of analyses including %LOI, bulk magnetic susceptibility, C/N ratios, and stable isotope analysis of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ , are employed to detail and decipher the archive of environmental change available in the sedimentary record. An age model is generated based on  $^{239+240}\text{Pu}$  isotope analysis. Five zones of temporal variability indicated by the resulting geochemical proxy suite are identified and interpreted. Zone 5 (~726 – 1302 AD) is marked by relative stability with no apparent environmental changes. Zone 4 (~1302 – 1483 AD) exhibits trends that suggest bolstered paleoproductivity possibly in response to warmer temperatures. Zone 3 (~1552 – 1664 AD) exhibits synchronous depletions across the proxy suite, a response to a proposed Little Ice Age cooling episode. Zone 2 (~1707 – 1827 AD) exhibits a response to a watershed disturbance interpreted as regional deforestation following European settlement. Finally, Zone 1 (~1827 – present) shows a recovery of the watershed, with values returning to pre-deforestation levels as a comprehensive vegetation cover is established. Recent anthropogenic impact may be indicated by marked depletions in  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  in the uppermost sediments.

## FRENCH

**Kate L. Lyczkowski**

*Advisors:* Kirk Read and James Parakilas

### *Harmonies due soir : Baudelaire et Debussy*

Claude Debussy's 4th Prélude takes its title from a line of the poem "*Harmonie du soir*" by Charles Baudelaire (« *Les sons et les parfums tournent dans l'air du soir* »)—The sounds and scents float in the evening air). The use of this poem's verse in relation to the prélude serves as a starting point for a discussion of the intersection of the arts, whose juncture is the intangible essence that drives our creation of and yearning for art. I examine this essence through a study of Debussy's search for a "new" music (a style that rejects the musical conventions imposed upon him by the Conservatory) and of Baudelaire's poetic attempts to elucidate this same essence of transcendence as defined by the arts. Finally, analyses of the poem "*Harmonie du soir*" and of the aforementioned prélude help to reveal the ways in which the arts of music and poetry converge in a single work and create a new aesthetic state.

## GEOLOGY

**Megan S. Arnold**

*Advisor:* Michael Retelle

### **Sedimentation in High-Arctic Lake, Linnévatnet, Svalbard: A Modern Process Study Using Sediment Traps**

Linnévatnet is a High Arctic glacier-fed lake in Svalbard in which past climatic characteristics are recorded in laminated lake sediments that likely span the past 9,000 years. The laminae are composed of annual terrigenous couplets consisting of distinct coarse summer and fine winter layers. Previous studies in similar proglacial lakes throughout the Arctic and alpine regions have determined that varves of this type may record an archive of past weather and climatic influences in the catchment area. Sedimentation in Linnévatnet has been studied since 2003 using sediment traps and instruments deployed yearly and seasonally. The traps were deployed at five locations in the lake proximal and distal to the major inlet. Depending on the water depth at each location two to five traps were attached mooring lines. In the sediment traps, the summer melt season sediment is represented by distinct coarse sediment events reflecting meltwater pulses, the timing of which are constrained by time-lapse photography and loggers on the

moorings. The first and coarsest (26 microns) grained sediment pulse was deposited on July 4 – 5, 2008, coinciding with peak snowmelt discharge. Subsequent events appear as finer (12 – 14 microns) graded laminae in the traps and are associated with similar high discharge events in mid-July. The fine winter layer (5 – 8 microns) coarsens slightly upward and reflects quiet winter sedimentation. Sediment stratigraphy and grain size trends in 2007 – 2008 were compiled with sediment trap analyses back to 2003 to form a composite record to compare with lake bottom deposition as reflected in sediment cores recovered adjacent to the moorings. Thin sections of laminated sediments from the cores display complex summer layer stratigraphy with multiple sedimentation units as seen in the sediment traps. Correlation between distinct units in the thin sections and sediment traps was attempted to evaluate climatic and environmental conditions responsible for the deposition of recent varved sediments.

**Emily A. Chandler**

*Advisor:* Michael Retelle

**Seasonal Processes Affecting the Seawall Barrier System and the Evolution of the Southwestern Barrier Spit and Sprague River Inlet, Phippsburg, Maine**

Sea level rise, seasonal weather patterns and storms have dramatic effects on barrier beach systems and can cause erosion and shifts in shoreline location. Seawall Beach, in Phippsburg, Maine is an undeveloped barrier beach system, making it a prime location to study the dynamics of barrier systems. The barrier is bordered by two tidal inlets, the Morse River to the northeast and the Sprague River to the southwest. The inlets have shown significant migration over the past 60 years causing loss to recreational beaches bordering the barrier system. This study focuses on the changing morphology of western Seawall Beach and the Sprague River tidal inlet from summer 2008 to winter 2009. Long-term observation of the western sector of the barrier system from the analysis of aerial and historic photographs (1953 to 2009) demonstrates the development of a prominent southwest barrier spit and the westward shift of the Sprague River. Seasonal changes observed in beach profiles and time-lapse photography indicate that wave refraction, caused by the bathymetry of the nearshore area, the position of offshore bedrock outcrops and the Cape Small headland, enhance longshore sediment transport southwestward forming the present-day extended barrier spit. Although the Sprague River is constrained from further westward migration by the bedrock outcrops of Cape Small, in this period of dominant southwestward longshore transport, the barrier spit obstructs eastward migration of the inlet channel. Major storm erosion of the spit platform or a shift in the westward longshore transport pattern could allow a subsequent eastward migration of the Sprague inlet.

**Maura B. Foley**

*Advisor: J. Dykstra Eusden, Jr.*

## **Contact Relationships Between the Ammonoosuc Volcanics and the Jefferson Dome, Northern Presidential Range, New Hampshire**

This study examined the contact relationship of the Ordovician Ammonoosuc Volcanics (Oam) and Oliverian Jefferson Dome (Obqm) along the southeast flank of the Bronson Hill Anticlinorium, northern NH. Strip maps were created, and structural information was collected across the boundary between the Ammonoosuc Volcanics and the Jefferson Dome during the summer of 2008. This study determines the kinematics and timing of the contact between the Ammonoosuc Volcanics and the Jefferson Dome pre- and syn- doming as it is viewed in the study area. The creation of detailed maps reveals that the Obqm is intercalated with the Oam and both units contain pervasive foliation and lineations decreasing in intensity away from the contact. The kinematic evaluation of 7 oriented thin sections shows normal slip in the Oam, and reverse slip in the Obqm, in their current domed orientation. The normal motion in the Oam is interpreted to be syn- doming. Mylonitic fabrics in Oam measured in Mystic and Cold brooks truncate along the principal Oam/Obqm contact and would suggest, by correlation, that the same reverse shear sense indicators in the Obqm are also older fabrics having the same motion. All of these fabrics were later domed. The reverse motion in the Obqm becomes normal motion when the Obqm is restored to its pre- doming orientation. This normal motion represents a possible mechanism for the intercalation of the Oam and Obqm. A model of two low-angle cross-cutting listric normal faults is proposed to explain the geometry of the intercalated Oam and Obqm. This model is supported by a Earliest Devonian (415 +/- 7.2 ma) electron microprobe monazite age of normal faulting, Early to Middle Devonian (380 - 392 ma +/- ~ 5ma) ages of Acadian metamorphism, Middle to Late Devonian (370 - 367 +/- ~ 5) Ma ages of doming, and Late Devonian to Carboniferous (367 - 346 +/- ~ 5 Ma) ages of Bickford plutonism. The structural complexity viewed throughout the study area is interpreted to be associated with the Piermont parautothion and the transport of shallow water facies of the Bronson Hill Anticlinorium east to west over the anticlinorium. This is closely related to the location of the Silurian Tectonic Hinge relative to the study area.

**Dana J. Oster**

*Advisor: Michael Retelle*

### **Mapping Short-Term Barrier Beach Processes at Seawall Beach, Phippsburg, Maine, to Model Transgressive Shorelines in 2100 from Sea Level Rise**

The Maine coast is directly threatened by sea level rise from projected climatic warming in the coming century. As barrier beaches generally migrate with rising and falling sea level, it is imperative to be able to predict the morphology of the beach system in the near future. The purpose of this study is to create a computer model in ArcGIS to project a wide range of scenarios of changes in the shoreline at Seawall Beach, Phippsburg, Maine, caused by sea level rise (SLR) in 2100. Four SLR scenarios were used to calculate average rates of transgression. The vertical range of SLR used was 3-21mm/yr. The Bruun Rule (Bruun, 1954) was used in conjunction with the average beach slope determined from topographic surveys (July 2008 through February 2009) to generate predicted rates of transgression between 0.85-6 m/yr. The Bruun Rule was tested against observed changes from 2001 to 2008. The observed average rates of transgression from 2001 to 2008 revealed the rates of transgression were three times faster than predicted by the Bruun Rule. The generalized Bruun Rule was modified using seasonal and historical data to quantify the localized processes and morphodynamics at Seawall Beach. The resulting calibrated rates of horizontal transgression determined using the four SLR scenarios were increased by a factor of three to 2.6-18m/yr. With the vertical and horizontal parameters for the model determined, the projected shoreline for 2100 revealed the western barrier spit and the Sprague salt marsh's vulnerabilities.

## **HISTORY**

**Emma G. Halas-O'Connor**

*Advisor: David Scobey*

### **Creating YADA: A History of Youth Civic Engagement in Lewiston, Maine**

In 2006 a diverse group of youth and adults from Lewiston and Auburn, Maine, joined together to discuss how they could make their communities more accessible and appealing to young people. Their dialogue sessions and action groups ultimately formed an organization, YADA, or "Youth + Adults + Dialogue = Action," which has creatively responded to the need for more youth opportunities, and represented the culmination of over fifteen years of steadily increasing civic engagement in the Lewiston area. The creation of YADA reflected a nationwide

trend of stronger communities and increased youth civic engagement in the late twentieth century, during a time when Americans (particularly youth) appeared apathetic toward public life. Considering the importance of social capital outlined by Robert Putnam, and Peter Levine's arguments for a greater emphasis on youth civic engagement, this thesis studies local youth involvement, from the 1960s through 2008. Using community-based research, I documented three historical narratives that set the stage for YADA—increasing community collaboration, changing attitudes toward young people, and heightening youth agency—all of which serve to illuminate how youth civic engagement has flourished in the early twenty-first century.

**Benjamin G. Linder**

*Advisor:* Elizabeth Foster

### **Vision and Reality: German Colonialism in Ober Ost, 1915-1918**

This thesis investigates the motives of and actions taken by the German Army occupation force in the area of the Supreme Commander in the East (Oberbefehlshaber Ost), an area that encompasses much of modern Lithuania and the Baltic states. This area was different from other areas occupied by German forces during World War I and from prewar German colonies in that it was occupied solely by German troops, and was under military rule. Using memoirs and other primary documents, the thesis looks into the motivations and goals of this military colonization—whether there was a “civilizing mission” or this was simply a case of material exploitation. The main avenues of inquiry are the long-term goals of the administrators and the discrepancies between the vision for and reality of the occupation.

**Elizabeth L. Nelson**

*Advisor:* Elizabeth Foster

### **The Nineteenth-Century British Circus**

The circus was one of the most popular forms of leisure in nineteenth-century Britain. Circus shows attracted patrons in rural areas and in cities, from the elite classes and the lower orders. Chapter One of my honors thesis considers how the shows, which comprised acrobatics, clowning, animal taming, and “freaks,” appealed to nineteenth-century audiences. Chapter Two explores how the shows contributed to the growth of British national consciousness and the development of popular perceptions concerning the Empire. In Chapter Three, contemporary debates regarding the moral soundness of circus shows are traced, as are the effects such debates had on the ability of proprietors to sell their shows to the public freely.

Chapters Four and Five examine the circus from the perspective of those involved in the business, asking specifically where circus performers were located in the Victorian class hierarchy, what relationships they formed within the business, and what skills they employed to maintain their livelihoods.

**Jon B. Rosenberg**

*Advisor:* John Cole

### **The Spanish Inquisition and the Failure of the Protestant Reformation in Spain**

The Protestant Reformation did not take hold in Spain. Part of the explanation may be the actions of the Spanish Inquisition. I argue that its prosecutions of Spanish religious reformers, mainly humanists and mystics, had a significant impact in delaying and limiting the development of Lutheranism. Nevertheless, their advocacy of reforms in the early part of the sixteenth century (1520s and 1530s) did lay the foundation for the late and limited penetration of Lutheranism in 1558. Analysis of the Inquisition's prosecutions of Spanish humanists and mystics does show their proto-Lutheran tendencies. Comparison of the Inquisition records of the Spaniards who adopted Lutheranism with those of these humanists and mystics shows that the Lutherans were influenced by the beliefs and writings of their predecessors. In its prosecution of indigenous religious reformers, the Inquisition prevented the radicalization and popularization of Spanish religious reform movements into ones that rejected the Roman Catholic Church.

**Rebecca G. Wason**

*Advisor:* Margaret Creighton

### **"A Wretched Little Community": Transition and Perception at the Isles of Shoals**

Situated a few miles off the coast of Maine and New Hampshire, the Isles of Shoals were home to a small, rugged community of fishermen beginning in the 1620s. Known throughout the world for their profitable fishing industry, the inhabitants also developed a reputation for being immoral and uncivilized. Both historical transitions within the community and perceptual changes from the mainland contributed to this reputation. Because of their long history of resistance to external authority and their historic sympathies toward the English church and crown, the island community was disbanded for the duration of the Revolutionary War to prevent collusion with the British. In addition to this significant disruption of economic momentum, the islands also suffered the loss of their beloved long-term



minister, the Reverend John Tucke. The inconsistent succession of short-term missionaries during the nineteenth-century could not compare with Tucke's steady, effective guidance. This decline in the prosperity and leadership at the Shoals, however, was not entirely responsible for the apparent degeneracy of the islanders after 1800. Changing social values on the mainland contributed to the image of the unruly, ungodly fisherman, particularly though Victorian reformers who actively targeted communities they considered destitute.

## INTERDISCIPLINARY STUDIES

**Gretchen S. Grebe**

*Advisor:* Sonja Peick

### **In Search of Sustainable Watershed Management for the Río La Paz Watershed, Costa Rica**

Water misappropriation and contamination is a growing threat to the health of our ecosystems, families, and agricultural products. With the development of urban centers, population growth, and augmented consumption patterns, the issue of water protection and conservation is one that no country or community can continue to ignore. This thesis focuses on the challenges and successes of water management initiatives in Costa Rica. I begin by reviewing the current global water crises, theories of environmental governance, payments for environmental services, and participatory resource monitoring. I then highlight multiple watersheds of central Costa Rica in which communities are assuming responsibility for their water distribution and protection through co-management initiatives. Considering these particular examples in addition to the legislative structures, land use, community organizations, and socioeconomic demographics within the area, I recommend an arrangement for the Rio La Paz Watershed. Ultimately I argue that hydrologic management plans are extremely case-specific and may be severely affected by changes in national policy. However, an integrative approach to water conflicts can lead to community empowerment and an increased awareness of water resources.

## MUSIC

**Sophia L. Budianto**

*Advisor:* James Parakilas

### **The Treatment of the Flute in the Romantic Period: A Century Improverished of Flute Repertoire**

As we look back in time at flute repertoire of the Western classical domain, it becomes evident that the Romantic period represents a time of significant impoverishment. This claim speaks specifically to the solo flute repertoire: works written for the solo instrument and concertos written for the soloist. The absence of flute repertoire in this time can be attributed to neither a lack of flautists nor a lack of composers; what transpires is a distinct lack of supply and demand. In my thesis, I explore the reasons for this sudden lull. By looking extensively at the changing mechanics of the flute, the changing demands in performance circumstances, and the treatment of the flute in the larger orchestral and chamber settings, I parse the differences that arise in the treatment of the instrument itself. In order to contextualize, I look at the changes that arise from evolving circumstantial factors, such as the very nature of Romanticism. My thesis includes two components, the performance and the written discussion. The works that I perform function as case studies, serving to demonstrate and corroborate the claims of my written discussion. Ultimately, my thesis provides important insight into how the flute should be negotiated—by the performer, the composer, the conductor, the historian, or the listener.

**Kate L. Lyczkowski – See French**

## NEUROSCIENCE

**Jennifer A. Foster**

*Advisor:* Michael Burman

### **The Emergence of Hippocampal Function in Contextual Fear Conditioning in a Rodent Model**

Learning to fear a general environment (contextual fear conditioning) emerges later in development (postnatal day [PD] 23) than learning to fear specific stimuli (explicit cue fear conditioning; PD 17) (Rudy, 1993; Rudy & Morledge, 1994; Stanton, 2000). As contextual, but not explicit cue, fear conditioning relies on the

hippocampus, it has been suggested that the hippocampus is not fully developed until PD 23 (Rudy, 1991, 1992, 1993). The current experiments further investigate hippocampus development by separating the phases of contextual fear conditioning. Rats were allowed to learn about the context, a hippocampus-dependent task, on one day and to form the fearful association, which relies on both the hippocampus and amygdala, on another day. In Experiment 1, rats exposed to the context on PD 17 exhibited significant fear only when trained and tested a week later (PD 23, 24), but not when trained and tested on consecutive days (PD 18, 19). This demonstrates that rats can learn about a context as early as PD 17. In Experiment 2, the hippocampus was lesioned prior to training to ensure the task depends on the hippocampus at these ages. These data are among the first to provide compelling evidence that the hippocampus is functional in spatial or contextual learning as early as PD 17, however its connection to the amygdala or other relevant brain structures may not yet be fully developed.

**Miranda S. Gallo**

*Advisor:* Nancy Kleckner

### **Characterization of a Novel $\alpha$ -GluR5/6/7-immunoreactive Cell Group in the Buccal Ganglia of the Pond Snail, *Helisoma trivolvis***

A central pattern generator (CPG) is a neural network that produces rhythmic yet modifiable behavior when groups of neurons fire out of phase in a patterned manner to produce parts of a sequenced behavior. The feeding behavior of the pond snail consists of three phases of movement, each controlled by different neural circuitry. The neurotransmitter glutamate patterns the CPG, having distinct effects on each phase of feeding based on different receptor types located on neurons that control the different phases. Cells that bind antibody to the glutamate receptor subunits  $\alpha$ -GluR5/6/7 present a novel group of neurons that have an unknown involvement in feeding circuitry. This study aims to characterize these neurons with respect to physiology, pharmacology, and CPG involvement. Intracellular recordings from  $\alpha$ -GluR5/6/7 cells revealed sub-threshold excitation in response to glutamate and the glutamate receptor agonist kainate. Simultaneous recording from  $\alpha$ -GluR5/6/7 neurons and involved motor neurons indicated that activity in this novel cell group corresponds with excitation in the circuitry controlling the second phase of feeding. Targeting accuracy was ensured by injection of a tracer in the targeted cell and staining with the  $\alpha$ -GluR5/6/7 antibody. These preliminary data suggest a modulatory role of  $\alpha$ -GluR5/6/7 neurons in the feeding CPG.

## PHILOSOPHY

**Timothy M. Ayotte**  
*Advisor:* Mark Okrent

### **A Heideggarian Theory of Reference**

In my thesis, I formulated and analyzed a theory of reference based on Martin Heidegger's pragmatic phenomenology of understanding. At the most basic level, a theory of reference aims to explain how names function to pick out objects in the world. Attempts to generate a feasible account of how names relate referentially to objects have spawned almost two centuries of lively debate. My project began with an explication of the prevailing classical theories of reference. I focused on the works of Frege, Russell, Kripke, Wittgenstein, Putnam, and Husserl. An exposition of these works shed light on the basic issues in formulating a workable theory of reference and how they relate to the theory that I proposed. My theorizing regarding Heidegger was supplemented by the works of contemporary Heidegger authorities such as Christina Lafont, Mark Wrathall, and Mark Okrent. Ultimately, my main argument is that Heidegger's writings and philosophic orientation appear to commit him to the view that meaning determines reference directly; and that the meaning of a naming term alone is adequate to fix the reference of that name (to paraphrase Wrathall).

**Elizabeth A. Billington**  
*Advisor:* William Seeley

### **Parasomnia and the Explication of Unconscious Intentionality in the Twilight Zone**

Some philosophers claim that action, unlike events, necessarily requires the participation of an agent that possesses potential conscious access to intentional mental content about the world. Having conscious awareness of intentional states during rational action demonstrates an inextricable link between consciousness and intentionality. Particular cases of parasomnia – a category of sleep disorder that exhibits dissociated states of sleep and wakefulness – challenges this relationship. The complicated actions of sleepwalkers seem to connote at least a minimal version of intentionality which is not conscious: sleepwalkers are asleep. The paradox of parasomnia involves the success of unconscious intentionality in action, since parasomniacs do not seem to have potential conscious access to intentional content regarding their environment, nonetheless, they engage in complex behavior and some rational action. This philosophical friction can be addressed with an evaluation of other phenomena in which intentional contents drive action in the

absence of conscious awareness. Cases of visual agnosia and slope perception further demonstrate that consciousness of intentional content is unnecessary in the execution of action, and facilitate a working model that explains the paradox of parasomnia. Clues that come from an evaluation of parasomniac phenomenology lead to evidence that intentional states inhere in an unconscious evaluation of our environment in everyday life.

**Daniel F. Bousquet**

*Advisor:* David Cummiskey

### **In Defense of Comprehensive Liberalism**

Citizens in liberal democracies must find a basis on which to have discussions regarding political issues. However, recent cross-cultural studies suggest that the liberal and conservative worldviews are based in fundamentally different psychological orientations. These diverse and often conflicting outlooks account for the inability of individuals to have dialogue on political matters, as groups tend to moralize actions from their particular, often religiously influenced, conception of what a good life entails. As a result of this deep disagreement in pluralistic society, John Rawls thinks that we need a distinctively political conception of liberal justice. By examining the psychological underpinnings of different moral foundations and questioning the ability of individuals to operate from a pure political perspective, I defend liberal values not just as a political conception, but as a comprehensive moral doctrine. The moral foundations of nonliberal views do not provide an acceptable account of interpersonal justification. The liberal foundations, on the other hand, represent a shared point of agreement on which all reasonable citizens can agree. Although liberal values arose in a specific cultural context, namely, one in which mobility and diversity abound, they prove to be the most justified moral perspective.

**David J. Kelly**

*Advisor:* William Seeley

### **Embodying Music: What Feeling Can Tell Us About Musical Expression**

Music cannot independently express emotions because it is incapable of undergoing them in the first place; a song is a set of notes, not a sentient being with feelings. We can, however, say that music *resembles* the expression of emotions. But how do these resemblances operate and *how* do we access their expressive content? For the “arousalist,” expression is a function of listeners' intersubjective emotional response; music is expressive because it causes us to feel a certain way. The “expressionist,” on the other hand, views expressiveness as a property of the

music *independent* of any response; the resemblances are *in* the music. Typically these theories are pitted against one another. My project is to illustrate how the two are actually interrelated. I argue that this false dichotomy reflects a broader dichotomy between noncognitive and cognitive theories of emotions generally. By dissolving this latter dichotomy, and showing how feeling and judgment are intertwined, I argue that expression is a function of listener "independent" structure *and* listener arousal. I argue that we can intellectually identify expressive resemblance, but we can also *feel* it; both dimensions are required for a sufficient account of musical expression.

**Christopher J. Murray**

*Advisor:* Mark Okrent

### **Fregean Phenomenal Content**

A description of the *phenomenal character* of a perceptual experience is a description of what it is like to have that experience. Meanwhile, the *representational content* of a perceptual experience is the proposition that would have to be true in order for the experience to count as accurate. Traditionally, philosophers have ignored or even denied that there could be any interesting connection between an experience's phenomenal character and its representational content. More recently, however, philosophers have begun to argue that the two are somehow connected. I find it plausible that, at the least, the phenomenal character of an experience determines its representational content in such a way that given a full description of the phenomenal character of an experience and nothing else, one could know what proposition would have to be true in order for the experience to count as accurate. Certain thought experiments and empirical facts having to do with variation among perceivers seem to undermine this claim. I propose a view that can reconcile these thought experiments and empirical facts with the claim that the phenomenal character of an experience determines its representational content in the way mentioned above.

**Brooks N. A. Puchner**

*Advisor:* David Cummiskey

### **Basic Rights, Coherence, and the Privatization of Water**

The argument seems simple enough: Life cannot subsist in the absence of water. To place a price upon water is to indirectly place a price upon life. To deny access to water because it cannot be afforded is to deny access to life because it cannot be afforded. But is access to clean water necessarily a right? If so, what is the relation of a right to water to all other rights? How does the privatization of

water impact these rights? This thesis explores the right to a minimum level of accessible, clean water through the development of a liberal, coherentist account of basic rights. Examining water privatization in relation to dominant contemporary political philosophies and through a coherentist approach to basic rights theory, I assess whether current privatization policies are justifiable means for the provision of water. Ultimately, I argue that current water privatization policy fails to be morally justifiable, for the world's dominant aid agencies neglect duties associated with the right to a minimum level of access to clean water. I further suggest that a liberal, coherentist account of basic rights provides an ethical guideline for the development of alternative policies or, at minimum, drastically amended current policies.

**Anne C. Sheldon**

*Advisor:* David Cummiskey

### **Feminism, Multiculturalism, and Human Functioning**

The philosophical values of feminism and multiculturalism often conflict. Can the tension between respect for women and respect for culture be reconciled? In my thesis I explore this tension between feminist values and the right to a culture. While the theory of multiculturalism has the intent of inclusion and the respect for human dignity, in application, it can serve to tacitly condone the marginalization of women. This negative externality of a politics of inclusion is largely the consequence of the social focus on the private sphere. In my thesis I apply Martha Nussbaum's theory of human capabilities, an argument to universally ensure the basic capabilities for human functioning, to this tension. I subsequently argue for a feminist liberalism that focuses on human capabilities. With this framework, I critique and analyze arguments for a right of exit that fail to address how an individual's access to basic human capabilities enhance or compromise their right of exit and cultural efficacy. One's capabilities are both compromised and actualized by one's culture. The objective of my thesis is to determine basic choice conditions that accommodate for one's right to culture *and* one's right to self-determination.

## PHYSICS

**Nyan L. Aung**

*Advisor:* Eric Wollman

### **Galactic Dark Matter and the Cosmic Microwave Background**

Dark matter is hypothetical matter that does not interact with the electromagnetic force, but whose presence can be inferred from gravitational effects on visible matter. In this thesis, I study the rotational speeds of galaxies as evidence of the presence of dark matter. The visible matter of a typical galaxy contains a disk and a spheroid, the distinct spherical populations of stars in the forms of a central bulge and a stellar halo. Using an analytic approach, I have constructed rotation curves for the spheroid and exponential disk model of galactic mass. I demonstrated their poor fit to observed data. By incorporating a spherical dark halo, I have been able to fit the observed flat rotation curve. Moreover, I extracted and analyzed cosmic microwave background data with the idea of looking for any unexpected signature associated with galactic dark matter. I discovered from my analysis that the temperature inside the surrounding region of galaxies is above the average temperature of the sky region I am analyzing. This result implies that dark matter indeed interacts with thermal radiation from visible galaxies, contrary to the standard Big Bang model prediction that dark matter does not interact with electromagnetic radiation.

**Leslie E. Wade IV**

*Advisor:* Lilian Childress

### **Electromagnetically Induced Transparency in Rubidium Vapor**

Electromagnetically induced transparency (EIT) is an experimental technique for causing transparency in a medium ordinarily opaque to a certain frequency range of light by eliminating the medium's interaction with it. EIT is observed when two optical fields are adjusted to interact with a three-state quantum mechanical system in a medium. One optical field is set near resonance to a transition between two of the three quantum states, while the other is set near resonance with a different transition within the three-state system. The result is optical pumping into a dark state, which eliminates the medium's effect on the two optical fields and allows transparency at a specific frequency range. I studied and present a qualitative and quantitative approach to understanding the theory fundamental to EIT. In addition I built a Rubidium vapor cell experiment to observe EIT and explore its applications.



**Madeline C. White**

*Advisor:* Eric Wollman

### **Computational Models of Stars**

While it is possible to use optical telescopes to observe the exterior properties (i.e., size, luminosity) of a star, these same optical telescopes cannot probe the interior of a star. To determine the values of physical properties, such as temperature, pressure, luminosity, and mass, in the interior of a star, one must use computational models of the stellar interior. Constructing a computational stellar model involves solving a system of four differential equations that describe the structure of a star. These four differential equations must be solved numerically at a discrete set of positions running from the center to the surface of the star. The output is a table of values for the physical properties at each position. I studied the theory on which the four equations of stellar structure are based, and I used C++ to write my own code for computing the model. I verified my model by computing a model of the Sun, for which reliable models already exist, and by reproducing the famous mass-luminosity relationship.

## **POLITICAL SCIENCE**

**Gent Carrabregu**

*Advisor:* William Corlett

### **Democracy beyond Sovereign Aspirations**

This thesis takes issue with the ways in which the political activism of newly emerging subjects of rights, such as nonstatus refugees, interrogates sovereignty's hold on our ways of thinking and practicing democracy. This interrogation produces a paradox—newly emerging subjects of rights both undermine and abet state sovereignty—which this thesis uses as a point of departure for rethinking the traditional tandem between democracy and sovereignty. Disengaging such a tandem requires three major steps: 1) an examination of critical transnational deliberative democracy theory—Dryzek's "discursive democracy" and Bohman's "democracy of demo"; 2) an engagement with three critical sovereignty theorists—Hannah Arendt, Giorgio Agamben, and Patchen Markell—seeking nonsovereign paradigms of democratic politics that could serve to amend the positions of Dryzek and Bohman; and 3) an argument advancing a theory of democracy that disengages democratic politics from its strict identification with sovereignty by blending two different radical traditions in contemporary democratic theory: critical

transnational deliberative democracy (e.g., Dryzek and Bohman) and radical plural democracy (e.g., Laclau and Mouffe).

**Matthew P. Martone**

*Advisor:* John Baughman

### **Interest Group Access and the Maine Clean Election Act**

In effect since the 2000 election cycle, the Maine Clean Election Act is a public funding system for state legislative and gubernatorial races. The law was designed partly to marginalize interest group contributions to candidates and limit interest group influence in the legislature. Since clean elections have been popular with candidates (over eighty percent of candidates in the 2008 election cycle chose that type of funding), interest group contributions to candidates have decreased since the law's implementation. Theoretically, this eliminates the amount of access interest groups receive from contributing to legislators. However, in the years since the Clean Election Act went into effect, interest group money has been prevalent in the Maine legislative process. In particular, interest groups have contributed significant amounts of money to leadership PACs in an attempt to access the legislature. My thesis investigates the ability of interest groups to access the Maine Legislature through leadership PACs given a public financing environment. What is the nature of interest group access and the interest group-legislator rapport given the law? I suggest that interest group access to the legislature is open on principle and that groups maintain access based on their membership characteristics.

**Matthew D. Morgan**

*Advisor:* William Corlett

### **On Merit Systems: Recognizing Group Traits, Reforming Systems, and Resisting Structural Discrimination**

The idea that a merit system can judge actions and distribute rewards represents a large part of justice in the American legal, political, and popular imagination. Theorists of justice have nevertheless revealed many flaws in merit systems, such as the subjectivity of measuring merit traits. Many theorists, in criticizing merit, have suggested either affirmative action or abandonment of the entire concept as the proper solution. The theory of group merit proposed here considers the elimination of structural discrimination the goal for a successful reformation of merit. Two questions guide this theory. Do "impartial" and "fair" merit systems reinforce dominant social majorities? Can a reconfigured merit system replace less popular affirmative action systems by adopting aspects of relationally constituted group identities as merit traits, while maintaining merit's

legitimacy? In this study, a combined reading of group and merit theories reveals a foundational flaw in merit systems: the implicit use of group logic for determining merit in systems claiming fairness via reliance on solely individual criteria. Identifying and reforming this flaw in merit systems not only addresses issues of structural discrimination, but also maintains the rhetorical power of merit for a strong, yet more just, system of merit.

**Michael B. Petrick**

*Advisor:* Diane Haughney

### ***Lo Que Dejan: The Political Effects of Migration and Remittances in High Migration Regions of Mexico and Ecuador***

My thesis investigates the political effects of migrant remittances in high migration areas of Mexico and Ecuador. Remittances have created an economic force that has grown in size and importance every year since 1980. Today, migrant workers send fifty billion dollars home to their families in Latin America. Of that fifty billion, over sixteen billion goes to families in Mexico and four billion to Ecuador. Much is known about the profound economic and social impact remittances have in these sending communities. Less is known, however, about their political impact in these communities. I investigated the link between high levels of remittances and changes in political participation. In order to measure any changes that remittances have on political tendencies, I investigated three different forms of participation: voter turnout rates in federal elections, political protests, and attendance and participation in community and social organizations. Information was collected through a study of election records, a review of newspaper archives, and personal interviews with migrant workers from throughout Latin America who currently reside in the United States.

**Molly E. Ritner**

*Advisor:* John Baughman

### ***Judging Judicial Elections: The Effects of Elections on Decision-Making in State Courts of Last Resort***

The structure of each state's judicial system is left to lawmakers, resulting in the use of a plethora of selection mechanisms to fill state judgeships across the United States. Controversies concerning the best judicial selection mechanism have plagued states since the Jacksonian Era. The question remains: Does the manner in which judges are selected and reselected affect how justice is rendered in state courts? Previous research, studying the effects of judicial elections in death penalty cases, shows a trend toward more conservative decision-making on the bench in

response to electoral variables. This study examines judicial decisions in search-and-seizure cases in state courts of last resort across three election mechanisms: partisan, nonpartisan, and retention elections. Expanding the research to examine more common criminal cases, such as those involving search-and-seizure issues, in six states of varying ideological leanings will test whether the unidirectional shift toward more conservative decision making is consistent across cases and states. The study also examines variations in decision-making between different types of election mechanisms. The results inform the debate over judicial selection mechanisms by exploring the manner and extent to which judicial selection mechanisms effect how justice is rendered in state courts.

**Paul E. Suttter**

*Advisor:* John Baughman

### **A State House Divided: The Effects of Legislative Term Limits on the Policymaking Process of the Maine Legislature**

As the term-limits movement swept across the United States in the early 1990s, Maine became the fifteenth state to adopt a law constraining its state legislators. Because Maine was the only state to include a retroactivity clause in its statute, it became the first state in the nation to implement term limits in 1996. The modest amount of scholarship dedicated to legislative term limits has focused either on legislators' personal viewpoints concerning term limits or on how legislatures interact with other external players in government. I investigated the effects of increased legislative turnover (as a result of legislative term limits) upon the institutional and policymaking processes within the Maine Legislature. Because Maine is at the cusp of its "third generation" of term-limited legislators, a unique opportunity is available to study both the long-term and immediate impacts of implementing term limits. By examining various aspects of the policymaking process over the past twenty years, including roll call votes in joint standing committees and votes on the floors of the Maine Senate and Maine House of Representatives, this thesis sheds new light on how term limits can affect a legislature's key internal aspects such as partisanship, consensus-building, committee power, the power of party leadership, and cooperation between the House and Senate.

## PSYCHOLOGY

**Erin A. Bliss**

*Advisor:* Georgia Nigro

### **Experiences with Patient-Centered Education during Pregnancy and Childbirth**

There have been calls to make maternal care more patient-centered. Although patient-centered models are not necessarily specific to pregnancy, the core of many such models stresses appropriately educating patients through a positive interaction that provides the patient agency, allows the patient to make informed choices, and gives the patient a sense of preparation, all of which are crucial during pregnancy. To better understand the experiences of patient-centered education during pregnancy and childbirth, I conducted an exploratory study at a certified nurse-midwifery office. I conducted semi-structured interviews with twenty-eight pregnant and postpartum midwifery patients. Results showed that the midwives built positive relationships with and educated the women. While choice was available, it was also at times influenced by the midwives. The discussion more closely examines the implications of these findings.

**Leah A. Citrin**

*Advisor:* Georgia Nigro

### **Determining the Function of Aggressive Behaviors: A Case Study**

Researchers and practitioners use functional behavior assessments to determine the goal of behaviors. Although typically used with dysfunctional behaviors, functional behavior assessments can be conducted on any behavior. Research has identified four major categories of behavioral function: escape (e.g., when a request or demand is made of the individual), attention (e.g., while people are talking around, but not to, the person), sensory consequences (e.g., when the individual is left alone), and tangible consequences (e.g., to obtain a toy, food, or activity). Understanding the function of dysfunctional behaviors is important so that interventions can be appropriately directed. My thesis is a case study of a 13-year-old boy who suffered traumatic brain injury at five-days-old and currently exhibits aggressive behaviors. I conducted a functional behavior assessment to investigate which situations elicited the aggressive behaviors of punching, attempting to punch, and throwing objects. In determining the function of this boy's aggressive behaviors, the goal is to create effective interventions to aid the student's academic progress and minimize the disruptions caused by his aggression.

**Hannah L. Giasson**

*Advisor:* Kathryn G. Low

### **Testing the Effectiveness of Motivational Interviewing as a Primary Weight Reduction Strategy for Obese Cardiac Patients**

Since the late 1970s obesity among adults ages 20-74 has risen from 15.0% to 32.9% (CDC, 2007). The prevalence of obesity in the U.S. raises concern because obese individuals are at increased risk for chronic health problems including heart disease, high blood pressure, type II diabetes, arthritis-related disabilities, and some types of cancer. The goal of the current study is to examine the efficacy of Motivational Interviewing (MI) for weight loss in obese cardiac patients in Maine. MI is a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence (Rollnick, Miller, & Butler, 2007). By enabling patients to deal with ambivalence about healthy behavior change, the patient-tailored questions and conversations of MI may be more effective than formal didactic approaches or traditional nutritional education. Participants in the current study include obese cardiac patients ranging in age from 49-72. Participants in the intervention group receive a structured course of MI, while participants in the control group receive the regular course of dietary counseling by a nutritionist. Predicted findings include weight reduction and improvement in metabolic risk factors as a result of the MI intervention. Implications from these findings could inform health care providers attempting to assist cardiac patients with healthy behavior change.

**Rachel P. Ogilvie**

*Advisor:* Susan Langdon

### **The Effects of an Online Cognitive Dissonance Intervention on Maladaptive Body Attitudes**

Research suggests that college-age females possess maladaptive eating attitudes and behaviors that can be successfully reduced through cognitive dissonance interventions as an effective way of preventing eating disorders. Building on previous research, this experiment uses an online intervention and takes psychological and physiological measures to determine whether dissonance actually occurs. In part 1, baseline measures of maladaptive eating attitudes and dissonance correlates were assessed and disordered eaters were removed from the sample. In part 2, participants were randomly assigned to a cognitive dissonance, expressive writing or control condition. In the cognitive dissonance condition, participants wrote a series of counterattitudinal essays to induce dissonance, while the expressive writing group wrote emotive essays and the control group completed

a survey. After the intervention portion, the participants completed the measures that were distributed at baseline. Part 3 assessed maladaptive eating attitudes and psychological arousal at four week follow-up. Results indicated that participants in the cognitive dissonance group experienced a significant decrease in thin ideal internalization between the baseline and post-intervention assessments. However, there was no significant reduction in drive for thinness and body dissatisfaction. Additionally, participants in all groups demonstrated physiological arousal during intervention portion of part 2, but not during the survey portion. Implications and limitations of these results are discussed, as are directions for future research.

**Maren E. Vouga**

*Advisor: Georgia Nigro*

### ***Barasho Ingrisii: Somali Children Learning English in Head Start***

The global migration that has occurred in the past few decades has challenged school systems to extend the traditional curriculum and reach out to culturally and linguistically diverse students. In the United States, a body of research addressing the immigrant experience in U.S. schools has accompanied the trend of global migration and grown exponentially in the past couple of years. This research has formed the basis of much policy reform in the field of education. However, changes in policy do not necessarily predict changes in practice, and many educational institutions continue to struggle to accommodate their students' cultural and linguistic differences. The present study was an ethnographic case study of the Somali students in two Head Start classrooms in Lewiston, Maine. The aim of the study was to present the teachers of both classrooms with curriculum that would maximize their English language learners' (ELLs') language acquisition. I conducted classroom observations, and designed and implemented an 8-week, small-group, book-based intervention. Data came from field notes and teacher assessments based on Creative Curriculum, the curricular approach used by Androscoggin Head Start. In the thesis, I discuss both the ELLs' experiences with the standard classroom curriculum and the intervention as a sustainable tool for teaching future ELLs.

## **RELIGION**

**Benjamin P. Horgan**

*Advisor: Marcus Bruce*

**Salvation Narratives: Alcoholics Anonymous, Storytelling, and the Logic of Gift Exchange**

Since 1935, Alcoholics Anonymous (A.A.) has functioned as a self-help movement devoted to helping alcoholics achieve and sustain sobriety. Alcoholics Anonymous consists of a wide range of social, communal, and spiritual practices that help alcoholics overcome their addiction; prominent among these is the spiritual exercise of storytelling. Within A.A., storytelling refers to spiritual awakenings, a basis for a new life of sobriety, and a sense of shared values among its members. Interpreters of A.A. from a wide range of disciplines including religion have attempted to explain the shared bonds that A.A. provides its members and the success the organization has had in treating addiction. In my thesis, I take up gift exchange theory to suggest how A.A. nurtures the spirituality of its members and creates a shared sense of community through the exchange of one's vulnerability to addictive desires. By examining samples of A.A. "salvation narratives," this thesis applies the theoretical lessons from Lewis Hyde's theory of gift exchange to illuminate the spiritual and communal functions of A.A. storytelling with special attention to the gift economies created and sustained through A.A. practices.

## RHETORIC

**David R. Al-Ibrahim**

*Advisor:* Jan Hovden

### **The Rhetoric of *Planet Earth*: Environmentalism in Entertainment**

In 2006 the *Planet Earth* series was released by the BBC; by 2007 it topped DVD sales charts and has been aired on public and private television networks worldwide. Using the latest in filming technologies, the eleven episodes attempt to provide an overview of our planet's natural landscapes. The series received a great deal of attention, won numerous awards in television broadcasting and wildlife filmmaking, and was even promoted on the *Oprah Winfrey Show*, illustrating its popular appeal. Shot in the style of big-budget cinematic productions and entirely in high definition, *Planet Earth* has set the bar for natural history programs and wildlife films. The series pushed the envelope of the wildlife entrainment genre, daring to promote environmental awareness and address the negative impacts of humanity on our natural world. This thesis examines the rhetorical strategies used in creating *Planet Earth*, analyzing how narrative, shots, and soundtrack were used to employ entertainment values as a means to advocate environmental consciousness.



## SPANISH

Emma R. Weisser

*Advisor:* David George

### *La Humanidad Tejida: Exploraciones Bilingües de la Identidad en la Literature de Las Chiapanecas Indigenas*

In the mountains of southeastern Mexico, a movement is awakening that could give innumerable indigenous towns what they have been fighting for over five hundred years: land and liberty. Now in its fifteenth year, the Zapatista Army of National Liberation (EZLN) has empowered poor Chiapan towns by declaring autonomy from the national government while instigating radical social changes locally. In particular, new political and social awareness is providing a base for local indigenous women to demand a change in traditional gender roles. Their call for equality is unique as a result of their spiritual and artistic upbringings, and reflects a distinct form of feminism that responds to their particular self-awareness and world perspective at this dynamic time in Chiapan history. This study analyzes the ways in which these women represent themselves and their demands for respect, land, and liberty in their literature. Through a review of indigenous women's poetry, plays, and short stories from Chiapas, I conducted a literary analysis that illustrates the ways these women understand and present themselves and their world. To underscore their uniqueness, I also compared their literature and ways of self-representation to other literary forms in which the indigenous woman has appeared particularly in twentieth-century Mexican mainstream literature, *testimonio* literature, Mexican feminist writings, and communications from the EZLN.