2013 Senior Presentations: Candidates for Distinction in the Field

Antoine, Beatrice
Sociology
Crossing District Boundaries: The Benefits and Challenges of the METCO Program
Advisor: Catherine Bueker, PhD

This study examines the benefits and challenges for minority youth participating in METCO (Metropolitan Council for Educational Opportunity), a Boston-based program designed to serve the dual functions of providing urban children greater access to quality education in the suburbs and white children in the suburbs a more racially diverse educational experience. Through semi-structured, in-depth interviews with five graduates of the program and two administrators, I identify a series of benefits and challenges participants of the program experience. On the positive side, METCO appears to provide a more academically rigorous program and improve educational outcomes. On the negative side, METCO seems to lead to social disconnection from their residential communities, same-race peer friendships, and displacement of racial and ethnic identity. Future research on METCO must be conducted to further examine the intended and unintended effects of the program by participants. I identify inconsistencies within the program and make recommendations to correct them.

Attridge, Emelia
English/Literature
Examining Glorvina as Hibernia: the Gendered Implications of The Wild Irish Girl
Advisor: David Palumbo, PhD

Owenson’s The Wild Irish Girl perpetuates a literary history that figures Ireland as dependent. In her novel, the two main characters, Horatio and Glorvina, represent their respective countries, England and Ireland, as an allegory for the Act of Union. To analyze Owenson’s novel, I argue that the writing of Jonathan Swift establishes a literary tradition which figures Ireland as a dependent woman. Additionally, Thomas Tracy argues in, “The Mild Irish Girl,” that the Irish Glorvina is an empowered female that demonstrates agency. Where Tracy fails to understand the gendered implications of the national tale, I argue that the consequences of illustrating Ireland in this way are not just within the pages of the text. Horatio’s privileged gaze reinforces the gendered binary between England/Ireland, male/female, and allows for Glorvina to become idealized and inhuman. Instead of providing a national heroine as Tracy argues, Owenson perpetuates the nations’ unequal relationship.
Beckwith, Natalie
International Studies
E-Organizing: Transnational Political Activism and New Media Technology
Advisor: Christina Kulich-Vamvakas, PhD

The dawn of the Information Era has witnessed two remarkable developments in human history: the appearance and recognition of systemic problems that are global in scope and a wave of civil societal activism. The role of the Internet and new media technology in rapidly dispersing information, images, and ideas around the globe has garnered much attention in recent years, but there is little known about how new media shapes transnational activism organizations and their pursuit of social change. This study examines existing perspectives on the role of new media in contemporary activism organizing and conducts primary analysis of organizations' websites and qualitative interviews with organizations' staff. New media has amplified the activities of transnational activism organizations, but perhaps most compelling is the potential of new media to generate transnational virtual communities of mutual concern; however, it remains unclear precisely what possibilities this development has for lasting social change.

Benigno, Rebecca, S.
Elementary Education
Creating and Fostering a Learning Community in an Elementary Classroom at the Tobin K-8 School in Roxbury, MA
Advisor: Kimberly Sofronas, PhD

This presentation will share the experiences of Rebecca Benigno during her Fall 2013 practicum in a first grade SEI (Sheltered English Immersion) classroom at the Tobin School in Boston. Emphasis will be placed on her role in creating and fostering a strong learning community in the classroom. A learning community is an environment in which all members contribute to the development of a safe and comfortable place to learn and to express their thoughts, ideas, and opinions. Efforts to build the classroom community centered around promoting student independence, holding “community meetings,” celebrating diversity, differentiating instruction, and forming relationships with students.

Blank, Joel
Individualized Major: Music Cognition
Emotions in Music: Experiments in Composition
Advisors: Michael Jarvinen, PhD and Thomas Schnauber, PhD

This presentation will begin by discussing my independent research project in Cognitive Psychology that investigated how changing the speed (tempo) of a piece of music can change its emotive elements. Participants in the study listened to a piece that I composed at three different speeds and indicated after each listening session the emotions present in the music. Based on what I found, I wrote two original compositions that attempt to capture certain emotional states. These pieces will be performed live, and the audience and I will discuss how successfully or unsuccessfully these emotions are embodied in the music. Sections of these pieces will be performed again at different speeds, generating further discussion about how the emotive elements of the music are changed by varying tempi.
Campbell, Adam  
Political Science  
*A Scandinavian Success Story? The Role of Political Culture in the Egalitarian Model*  
Advisor: Marie Natoli, PhD

There exists an ongoing debate around the world concerning the nature and responsibilities of government in relation to the individual. The Scandinavian or Nordic political model asserts a highly responsible role for the state, positing that individuals should expect government assistance in times of need. In return, individuals living under the Nordic model in Sweden, Norway, Denmark, Finland and Iceland pay high taxes, while allowing for an expansive public sector and strong national government. This research evaluates and analyzes the political culture of the Nordic region while assessing its role in supporting the region’s egalitarian model. This paper will further examine the reinforcement that allows for this political culture to permeate from one generation into the next. The role of political culture in the formation of the current model is assessed through a study of egalitarian policy creation, gender representation in government, and institutional support of egalitarian ideology. The overall implications of the role of political culture in this model are then weighed on a greater scale, examining both the possibilities and difficulties of transplanting the model to other countries. Lastly, the inherent question of the connection between political culture and the make-up of the state will be approached in order to assess whether political culture acts as the main driver for policy creation, or some other variation.

---

Cavanaugh, Jill  
Biology  
*Using Cancer Stem Cells to Recapitulate the Hypoxic Environment of Glioblastoma*  
Advisor: Anupama Seshan, PhD

Glioblastoma (GBM) is the most common and malignant, primary brain tumor. Hypoxia and necrosis play a large role in the tumorigenesis of glioblastomas. However, current pre-clinical models cannot recapitulate those hallmark characteristics of GBM. To create better preclinical models, glioblastoma stem cells were extracted from human patients and injected into SCID mice. We found that one cell line, MGG123, not only gave rise to a tumor with striking similarities to the original patient tumor, but also showed large areas of hypoxia and necrosis. Patient and mouse tumors were characterized through immunohistochemical staining for proteins such as HIF1α, CD34 and Nestin. We found that the mouse tumor successfully recapitulated many of the critical characteristics of the patient glioblastoma, particularly the hypoxia and necrosis, and could provide an improved platform for testing new therapies.

---

Citarella, Theresa  
Art Therapy  
*Observing siblings at an afterschool program; how art therapy can enhance sibling companionship*  
Advisor: Emily Gould, MA, ATR-BC

After interning at an afterschool program in an inner city this semester, I have been awakened to the dynamics among sibling relationships, and my thesis is a response to this awakening. I have conducted several art therapy sessions with these children to help me understand the bonds they share with one another and then determine if art therapy can aid in their compatibility. These children have taught me about the physical, mental, and social aspects that childhood entails. Each sibling relationship had a unique dynamic, which was clearly demonstrated in the art therapy sessions.
Clark, Jennifer  
International Studies  
*Thinking Globally and Acting Locally: The Impact of Emerging Markets on Staffing the Multinational Corporation*  
Advisor:  Javier Marion, PhD

Recent years have witnessed an accelerated foreign business interest in emerging markets that, for the most part, remain untouched by the 2008 financial crisis and represent a growing, untapped consumer pool. In order to achieve sustainable competitive advantage in emerging economies Multinational Corporations (MNCs) require culturally competent managers to effectively coordinate their overseas operations. Using a comparative study of traditional staffing practices with emerging alternatives as well as a thorough investigation of institutionalized training and development curriculums this paper seeks to better understand the ways in which this shift away from established markets impacts the way MNCs can attempt to secure a competitive edge through strategic human resource management.

Colon, Jordan  
Political Science  
*The Turkish-Kurdish Conflict: Finding a Middle Ground*  
Advisor:  Marie Natoli, PhD

Since the independence of the state of Turkey in 1923, the Turkish-Kurdish question has plagued domestic and international relations for the country, which according to most political scientists has not yet completed its democratic transition. This work aims to discuss how the Turkish and Kurdish identities emerged within the state and how this has contributed to the conflict between the groups. Predominantly using frameworks established by E.J. Hobsbawm and Benedict Anderson, this work argues that in order to make any progress in the Turkish-Kurdish conflicts, the underlying issues pertaining to how these identities developed needs to be addressed first.

Cuddemi, Christine  
Biology  
*Comparison of the Protein Crystal Structure Between Wild-Type and Per-acetylated Bovine Carbonic Anhydrase*  
Advisor:  Anupama Seshan, PhD

Understanding how proteins crystallize is a fundamental question in biochemistry, and has important implications in molecular recognition. Carbonic anhydrase, specifically bovine carbonic anhydrase (BCA) is a good model system to study crystallization because BCA is structurally rigid, easily produced in large quantities, and well-studied. BCA contains 18 lysine amino groups, each of which is on the surface of the protein. When the lysine amino groups are acetylated with acetic anhydride, the overall negative charge of the protein increases substantially. We explored three physical properties of BCA and per-acetylated BCA: thermostability of the proteins, the binding affinity of each protein to a given ligand, and protein crystallization. We successfully labeled the lysine amino groups ((BCA-(NHAc)18), as well as obtained a crystallized structure. With differential scanning calorimetry we were able to gather stability data of both proteins. Further studies will look into the binding affinity of arylsulfonamide ligands to per-acetylated BCA using isothermal titration calorimetry. Overall, this research will aid pharmaceutical studies with the understanding of protein-ligand interactions and protein stability in regards to the functionality of drugs.
DaCosta, Caitlyn M.
English Education
Learning from field experience at the Pierce School, Brookline
Advisor: Lisa Schneier, PhD

The Pierce School in Brookline fosters a strong academic culture with an emphasis on community. Come learn about my practicum experience as both a seventh grade English teacher and aide in an eighth grade learning center. My passion for middle school education has allowed me to further my philosophy that each student brings something unique to the classroom. Emmanuel College has prepared me to effectively inspire within the classroom, opening new doors and solidifying my decision to educate.

Dame, Douglas
American Studies
Black Super Power: An Analysis of DC Comics' First African-American Superhero
Advisor: Matthew Elliott, PhD

Like all superheroes, the first Black Green Lantern (John Stewart) is endowed with unique powers, yet the very idea of power is complicated by the racial discourse that exists inside and outside his comic book series. Thus, power in his origin story is associated at times with a stereotypically fetishized black male physical power, while at other times it takes on a more socially critical dimension, indicating concerns with the superhero's power of self-definition and his power within the existing social structure. These themes, often found in African-American literature, are also woven into the conventions of superhero comics, resulting in a complicated moment of interaction between two generally distinct narrative traditions.

DeCusati, Frank
Psychology
Male Body Image and Social Norms
Advisor: Linda Lin, PhD

The purpose of this study was to examine male body image in relation to social norms for what other men considered the ideal male body size. More specifically, this study explored the prevalence of pluralistic ignorance, the tendency where the majority of individuals misperceive themselves as having beliefs and assumptions that are discrepant from the majority view, in relation to male muscularity. Participants were 117 male college-aged students from small, liberal arts college in the Northeast. Participants completed an online survey of their own weight preferences as well as their perceptions of other men's weight preferences. Results indicated that close male and close female friends influenced how muscular men said they wished to be. Results also indicated men misperceived other men as eating more for the purpose of muscle gain, using supplements more for the purpose of increasing muscle mass, and using steroids more than Emmanuel College men actually report. Finally, there was a relationship between being discrepant from the ideals of Emmanuel men and close female friends and muscle appearance satisfaction. Findings suggest that men overestimate the amount of muscle that others consider ideal or most preferable.
Earls, Elias  
Individualized Major: Biopsychology  
*Operant Conditioning: Behavioral Observations in Marine Mammal Husbandry and Training*  
Advisor: Anupama Seshan, PhD

Animal welfare and research are important as two of the more modern ways in which animal training proves to be useful. Animals are able to be taught how to participate in their own healthcare which means that humans can start to maintain mental and physical welfare with no stress to the animal. Through the observation of the species *Phoca vitulina*, *Zalophus californianus*, and *Callorhinus ursinus*, we were trying to determine the most effective methods of training as well as assess the preservation of natural behaviors while in captivity. We have gathered data regarding behaviors taught as well as natural behaviors observed, and how those natural behaviors may have been affected after having lived and been trained in captivity. Future studies in animal training and husbandry could use this information to increase effectiveness in training as well as preserving natural behaviors in animals that are used to study.

Giannotti, Laura  
Sociology  
*Hurricane Katrina: A Closer Look at Those Affected & How They Received Aid*  
Advisor: Catherine Bueker, PhD

Why did counties receive differing amounts of aid, following Hurricane Katrina? Although one expects it would be based on the damage a county had, I hypothesize, based upon social capital theory, that the amount of aid received was also associated with the number of businesses in the county, the poverty rate, and racial make-up, net of population size. I conduct secondary data analysis on data collected by the U.S. Census, FEMA, and other national databases. In contrast to my hypotheses, I find positive correlations between a rising poverty rate and the percentage of black residents, respectively, and the amount of aid received by a county, while a negative relationship exists between structural damage and aid received across county lines. A positive relationship exists between the number of non-profits in a county and aid, suggesting that non-profits may advocate for aid, making up for limited social capital at the individual level.

Grunder, Sarah  
English/Literature  
*The Efficacy of Contemporary American Metafiction: A Meta-Presentation on Metafiction*  
Advisor: Stace Budzko, MFA

Metafiction refers to narratives that self-consciously and systematically draw attention to their status as artifacts in order to question relationships between fiction and reality. While this device is often associated with the postmodern movement, it has gained increasing attention in recent years due to the audience’s seemingly insatiable thirst for the “real”. With metafictional elements reflected and exemplified throughout popular culture, an understanding of the operations of this technique is especially relevant to understanding the contemporary American experience. An analysis of self-conscious literature from the Romantic Era to present day, through the lens of simulated collaboration between author and reader, will offer insight into its characteristics and purposes in order to account for the current demand for metafictional texts. Along with discussing the efficacy of metafiction, the reasons behind its current implementation, popularity and marketability will also be examined. Additionally, a reading of original metafictional short stories will be presented.
Grunder, Sarah  
English Education  
*Learning from field experience at the Pierce School, Brookline*  
Advisor: Lisa Schneier, PhD

In the fall of 2012 I completed my student teaching practicum at The Pierce School in Brookline. During this presentation I will be reflecting upon my experiences teaching 7th and 8th grade English Language Arts. A specific focus on the teacher as a change agent, creating and sustaining learning communities, diversity, and equity/social justice will orient this discussion. Examples of student work and technology in the classroom will be offered. Please join me as I examine how the mission of the Emmanuel College education department has influenced me as a new educator, and where I see myself in the future.

---

Helkey, Daniel  
Mathematics  
*Efficiently Boarding an Airplane: A Modeling Based Approach*  
Advisor: Yulia Dementieva, PhD

The airline boarding problem involves minimizing the time it takes to load passengers onto an airplane. Reduced boarding time can allow airlines to operate more flights and have more profitable day-to-day operations. Various academic and industrial researchers have developed improved boarding schemes over the traditional method of boarding the airplane from back to front. While there are multiple studies considering this problem, few studies incorporate a model for time and spatial location involved in stowing luggage in overhead bins. We investigate luggage interferences, which occur when a passenger is unable to stow baggage at their seat due to a full overhead bin. A model is developed for the expected number of luggage interferences for a plane of arbitrary size. We also investigate how various boarding strategies perform differently in the presence of a spatial model for luggage.

---

Horgan, Joseph  
History  
*Our Most Solemn Responsibility: The Rise and Fall of Boston’s Civil Defense Program*  
Advisor: Dane Cash, PhD

This study of US Cold War civil defense history is divided into two parts. First is a historiographical review of three seminal books on the topic that have been published since the fall of the Berlin Wall. Second is a piece of original research, based on archival materials, that tackles a previously unstudied aspect of American civil defense by narrating the first comprehensive history of the Civil Defense Department of Boston, Massachusetts, from 1950-1963.
Janec, Kenneth  
Biology  
*Contribution of Hematopoietically-Derived Progenitors to the Central Nervous System in Chemotherapy-Induced Mixed Chimeric Mice*  
Advisor: Anupama Seshan, PhD  

During a neuroinflammatory state peripheral immune cells are recruited to the central nervous system (CNS). We established a working model of CNS chimerism that allows for both quantitative and qualitative measurements of donor hematopoietically-derived precursors to the CNS parenchyma. Normal C57BL/6 mice were treated with Busulfan followed by administration of syngeneic GFP positive bone marrow cells to create mixed hematopoietic chimeras. CNS chimerism was assessed using flow cytometric analysis and confirmed by immunofluorescence microscopy. Stable peripheral chimerism was established by four weeks post-BMT across multiple cell lineages. Flow cytometric data demonstrate that donor cells contribute to the CNS by seven weeks post BMT, observed by the appearance of GFP+ cells within the CD11b+/CD45mid population. Also at seven weeks, using immunofluorescence microscopy, GFP+/Iba-1+ cells demonstrate a ramified microglia-like morphology. These data demonstrate that hematopoietically-derived progenitors are observed in the CNS and may appear as early as seven weeks post-BMT.

Krauss, Nina  
Art History  
*Art Museum Education: History and Practice*  
Advisor: Cynthia Fowler, PhD  

This paper focuses on two questions related to museum education: how can art be used to help a person develop and grow? And, how can the unique attributes of the museum environment help to achieve these educational goals? In order to answer my questions, I focus on current art education pedagogies in relation to schools and museums, highlighting new and existing innovations. Specifically, I examine Visual Thinking Strategy (VTS), currently being used at the Isabella Stewart Gardner Museum as well as many other museums across the country. An examination of VTS reveals that students who learn about art through VTS improve their critical thinking skills dramatically. These skills not only allow children to learn how to examine art effectively, but also prove to be useful in every other academic subject. Art museums play a fundamental role in educating students, since the visual arts are often left out of grade school and high school curriculum. This paper highlights the importance of art museums in educating students in ways that extend across the curriculum and thus asserts the necessity of art education to be a fundamental part of a school’s curriculum.

Lynch, Michael  
Chemistry  
*Isolation and Characterization of Copper containing Enzyme Lysyl Oxidase*  
Advisor: Faina Ryvkin, PhD  

Lysyl oxidase (LOX) is a copper-containing enzyme necessary for the structural integrity and stability of the extracellular proteins collagen and elastin. Published procedures for the isolation of LOX often result in a wide range of enzyme purity and activity, ultimately believed to be a contributing factor behind still unanswered questions regarding the details of its catalytic mechanism. A 3D model of LOX has been generated and experimentally validated using a variety of spectroscopic techniques. Flexible docking has been performed to model interactions at mapped binding sites of LOX with synthetic and natural substrates and inhibitors. Structural and electrostatic changes were identified in the inhibited enzyme when compared to native LOX. Questions concerning what interactions between LOX and its natural substrates occur, which of them are crucial for the enzyme’s activity, and how these interactions may be used for future design of specific inhibitors and substrates of LOX will be discussed.
Mason, Jessica
Biology
*Exploring Visual Memory Processes*
Advisor: Anupama Seshan, PhD

Visual memory is one of the most important senses involved in autobiographical memory and is involved in a variety of different memory deficits. It is known that this type of memory is processed and stored in the amygdala, hippocampus and posterior cortices. Movies can be used in a lab setting to mimic “real-life” emotions and events in a controlled environment. In this study, we use movies to explore various processes of visual memory. We explore how visual memory changes over time, as well as how it is affected by auditory content, color, attention, as well as a variety of other variables. Preliminary results show that temporal sequence, auditory content and occlusion may have an effect on visual memory.

Masse, Kimberley
Psychology
*Fine Arts as a Therapeutic Means for Children with Autism Spectrum Disorders*
Advisor: Linda Lin, PhD

Autism spectrum disorders (ASD) have the fastest growing rate of diagnosis among developmental disabilities in children (CDC, 2013). With the three core facets of ASD including impairment in communication, impairment in social functioning, and an inability to break from fixated patterns of activities, interests and behaviors, there is a steady push to develop alternative therapeutic techniques. While music therapy has been a well-established form of therapy for over a hundred years (AMTI, 2011), dance therapy and drama therapy have recently been used more and more as therapeutic techniques for atypically developing populations (ADTA, 2010; ADA, 2012). Music, dance, and theatre are most commonly combined as one greater form within the realm of “fine arts.” Given their ability to improve social functioning, improve communicative abilities, and decrease repetitive or fixative behaviors, fine arts therapy is an effective alternative therapeutic technique. As current research focuses on the three core aspects of ASD as separate entities within populations that veer away from the spectrum, future research should be conducted targeting these impairments as a whole within a population specifically living with autism spectrum disorder.

Manopoli, David
History
*A New Lens on Liberal Modernization: The Influence of Benedict de Spinoza on John Locke’s Political Philosophy*
Advisor: Dane Cash, PhD

This essay will argue that there is an intellectual link between the philosophies of Benedict de Spinoza and John Locke. When one examines their major works and Spinoza’s letters with Henry Oldenburg, there is strong evidence that Spinoza influenced Locke. While the essay will address their epistemologies, primary emphasis will be on their political philosophies in order to address the thesis of Jonathan Israel that Spinoza’s political works had a direct influence on modern democratic institutions. By influencing Locke, and Locke in turn influencing the American Revolution, Spinoza has left a mark on American democracy, providing a new perspective on the development of political theory.
Achieving a university education in Nicaragua is nearly unfathomable for the majority of the poverty stricken 46% of the country. This paper explores the relationship between university education and nonprofit support in Nicaragua and argues that supporting university education will accomplish two significant advantages: It allows supported university graduates to bring their education back to their communities, thereby perpetuating the cycle of development. It also provides incentive for parents to send their children to primary and secondary school and raise attendance rates at these levels. Lastly, this study tracks how nonprofits provide individualized attention, community support, and university grants/stipends in order to enable human capital and stimulate economic growth for Nicaragua.

Powell, Harrison
Biology
*Characterization of Skin Resident Leukocytes after Allogeneic Bone Marrow Transplantation*
Advisor: Anupama Seshan, PhD

Induction of vascularized composite allograft (VCA) tolerance across major histocompatibility (MHC) barriers by hematopoietic cell transplantation (HCT) has previously been reported in MGH Miniature Swine. Stable mixed chimerism permits immunosuppression-free survival of VCAs; however the skin immune system in the context of VCA and mixed chimerism remains poorly characterized. VCA and host skin biopsies were performed and samples for flow cytometry were generated by enzymatic digestion. Cells were analyzed for markers of lineage and chimerism with a BD FACSCaliber or LSRII. Samples for immunofluorescence microscopy were viewed with a Zeiss Axioplan A1 microscope. Chimeric populations of Langerhans cells were identified in both VCA and host epidermis. Dermal CD3+ T Cells demonstrated chimerism at levels comparable to peripheral blood. In the animals who were nearly fully chimeric for >600 days the majority of T cells within the dermis were donor derived in both the host and transplanted VCA.

Quezada, Arlene
Sociology
*United States Immigrants & Mobility: Measuring Immigrant Standards of Living in the Host Society versus Country of Origin*
Advisor: Catherine Bueker, PhD

I explore how standard of living, beyond just economic measurements, impacts satisfaction among U.S. immigrants. Micro-economic immigration theory argues that immigrants migrate in an effort to maximize their earnings. Piore’s segmented labor market theory states that immigrants are willing to take on low-status jobs, because immigrants are working for income rather than prestige. But, is it only economic measurements that matter in satisfaction with one’s migration, even if those are the primary motivations? Through an analysis of surveys collected from 16 immigrants, I test the extent to which different measurements of standard of living (homeownership, job status, educational attainment, etc.) impact satisfaction in the U.S. Further, I examine the extent to which segmented assimilation theory receives support by looking at how satisfied immigrants of different stratum are. Do financial versus prestige measurements matter more to lower or higher level immigrants? Or, are predictors of immigrant satisfaction similar, suggesting a more across the board pattern of assimilation? I find that measurements of prestige matter in satisfaction with one’s migration.
Reddy, Meaghan  
Elementary Education  
*Learnings and Reflections on Student Teaching at the Tobin K-8 School in Roxbury, MA*  
Advisor: Fiona McDonnell, PhD

This presentation will focus on my experiences student teaching with a sixth grade class at the Tobin K-8 School in Roxbury, Massachusetts. The presentation will discuss the demographics of the school, and the class I worked with specifically in terms of cultures and learning abilities and disabilities. Specifically I will focus on the ideas of the teacher as a change agent, equity in the classroom, diversity and building a classroom community. Also, I will reflect on what I learned throughout the experience, and how the experience shaped my plans for the future.

---

Ribeiro, Sarah  
English/Communication, Media and Cultural Studies  
*Cindy Sherman: Multiple Bodies*  
Advisor: Lisa Falvey, PhD

The language of images – in photography particularly – is a physical representation of the variability of signified meaning. Roland Barthes believed that photographic representation was a product of the “indexical” nature of photography – that photography pointed to one physical, visual element that represents the “real” or “true.” Individual elements of the mass media and postmodern art culture affect meaning behind representation, questioning how a photographer’s perspective alters representation of an image. Focusing on Cindy Sherman’s works within “Centerfolds” and “Sex Pictures,” Barthes’ studies on connotation and Butler’s criticism of the female body merge with Sherman’s expressions of femininity to operate as a language of the body.

---

Rizzo, Nicholas  
Biology  
*Understanding The Leukocyte Adhesion Cascade: A Lentiviral Approach*  
Advisor: Anupama Seshan, PhD

In states of inflammation leukocytes must transmigrate through the endothelium and undergo an adhesion cascade in the process. During this process intercellular adhesion molecule-1 (ICAM-1) is upregulated and directly interacts with cortactin, which both play a vital role in transmigration. The protein’s twenty-eight amino acid intracellular tail has an SH3 binding domain which is thought to interact with cortactin’s SH3 motif on its C-terminal end. At the same time cortactin has been shown to interact with p120 on its N-terminal end and p120 is known to associate with VE-Cadherin. Therefore, we developed a lentiviral packaging system to efficiently deliver shRNA for ICAM-1 in order to knockdown wild type ICAM-1. We then used adenoviruses to insert wildtype ICAM-1 or an SH3 mutant ICAM-1. We measured the effects on transmigration and we have shown that the ICAM-1 SH3 mutant had reduced transmigration compared to wild type controls. This provides evidence for a vital complex formation involving ICAM-1/Cortactin/p120/VE-Cadherin in the presence of inflammation.
Ryan, Mary
Biology
*Improving Outcomes Following Peripheral Nerve Injury*
Advisor: Anupama Seshan, PhD

Recovery in peripheral nerve injury has yet to be perfected. However previous studies have shown that immediate repair by wrapping the injury site with human amniotic membrane (HAM) and sealing it with photochemical tissue bonding (PTB) can improve histological and electrophysical outcomes. This project aims to utilize this technology in an attempt to improve the outcomes following delayed repair of a peripheral nerve injury. We tested this hypothesis on New Zealand White rabbits (n=24) 28 days after a sciatic nerve injury. This was measured by nerve conduction analysis every 30 days after repair and histological examination when the rabbits were euthanized 150 days after repair. However, the preliminary findings for this research do not show significant statistical differences in recovery between the current standard method of repair and the use of HAM and PTB. Further data analysis of this experiment must be completed in order to obtain more accurate results.

Sanborn, Garrett
History
*“Gimme Shelter”: The Democratic National Convention of 1968 and Violence Within the American 1960s*
Advisor: Dane Cash, PhD

The rise-and-fall of the New Left represents a profound example of transformation within the American 1960s. Through a historiographical engagement of the established declension Sixties thesis, works by Todd Gitlin, David Farber and James T. Patterson open a discussion of the diverse forms violence took within the larger Sixties narrative. In order to adequately focus this exploration of violence and activism, the analytical emphasis shifts towards the Democratic National Convention of 1968. Through examining personal accounts of convention week chaos, this work strives to illustrate the complex factors which caused so many young Americans to flock towards the gathering storm of Mayor Daley’s Chicago in the summer of ’68. As the churning tides of the American Left and Right clashed, participant experiences illustrated the consequences of rejecting the proverbial shelter sought by a nation of bystanders.

Scribner, Ellen
Psychology
*Animal Assisted Therapy with Dogs: What is known and where the research needs to go*
Advisor: Linda Lin, PhD

Over the past several decades, the use of animal-assisted therapy (AAT), a treatment intervention that incorporates a specially trained animal into a goal-oriented therapy setting, has been increasing in prevalence. AAT has been found to be effective among a variety of populations, including childhood PTSD victims, children with autism spectrum disorders, adults with mental illness and elderly patients with Alzheimer’s disease and dementia. The present review will discuss the current research available on AAT among varying populations and identify the limitations that must be addressed in future research in order to establish AAT with dogs as an ideal adjunctive therapy in various mental health settings.
Shea, Emily
Sociology
*The sociology of youth suicide: risk and protective factors*
Advisors: Janese Free, PhD and Katrin Križ, PhD

What are the risk and protective factors impacting youth suicide today? Based on the theories of Emile Durkheim (1897) and Patricia Hill Collins (1989), I review scholarly studies published within the last twenty years to analyze the societal factors leading to suicide among young adults (ages 15-24 years). I propose that youth suicide is a result of many societal factors that are impacting the individual, including a young person’s social environment, gender, class, race, sexual orientation, religion, family, and their community involvement. These social factors can ultimately negatively or positively affect the individual, leading or preventing her or him from engaging in suicidal behaviors. Results show that social environment, gender, class, race, and sexual orientation can act as either risk or protective factors, depending on the intersections of several variables that will be explained in-depth. Religious involvement, family ties, and community connectedness act as protective factors against youth suicide. Future research needs to develop prevention programs and evaluate them for their effectiveness in preventing youth suicide.

Sliwkowski, Daniela
Art Therapy
*The use of mandalas in short term groups on a pediatric inpatient psychiatry unit*
Advisor: Emily Gould, MA, ATR-BC

Interning at a short-term pediatric inpatient psychiatry unit, I have been exposed to the difficulties that come with working in this kind of setting, specifically in group therapy. I was provided with the opportunity to construct my own group at my practicum site. Keeping in mind the nature of an inpatient psychiatry unit and my background knowledge as an art therapy undergraduate student, I contemplated a group structure that could universally meet the unpredictable needs of patients at my site. My knowledge of mandalas as a tool for healing and self-expression gave me the adequate justification to try and incorporate them into the creation of my group. Throughout this paper I will discuss the process that I underwent in constructing a weekly mandala group at a pediatric psychiatry unit.

Tilove, Micah
Biology
*Effector Function Analysis of the IgG Isotypes of Macaca mulatta*
Advisor: Anupama Seshan, PhD

IgG molecules hold large appeal as targets of study, both as components of the immune system and as potential therapeutics. Macaca mulatta, the Rhesus macaque, is used extensively in medical research, including work with monoclonal antibodies. IgG molecules that do not activate the immune system but have the pharmacokinetic properties of normal antibodies have strong potential as therapeutics in many realms. In this study, we report the complement-dependent effector function of the Rhesus macaque IgG isotypes and several Fc mutants we had previously engineered.
Weinstein, Olivia  
Management/Economics  
Business Plan for a Preventative Nutrition Initiative  
Advisor: Regina Rutter, MBA

This business plan lays the framework for Fitting In, an organization that works with children, aged 9 to 14 years old, in developing positive eating habits and active lifestyles. The mission of Fitting In is to stimulate a preventative nutrition initiative that fights obesity and obesity related diseases by educating youth about healthy lifestyles before poor habits are formed. Fitting In is designed to provide services to low to mid income families in the city of Boston. The inability to obtain healthy lifestyles due to socioeconomic factors has instigated not only concern for the physical health of children in Boston, but also the overall health of all individuals in the United States. Diseases associated with poor lifestyle choices play a factor in the increase in healthcare expenditure that is adding to the U.S. federal debt.

Westerlind, Brian  
English Communication, Media, and Cultural Studies  
Ironic (In)Authenticity: A Class Based Theoretical Account of Contemporary Indie Culture  
Advisor: Christopher Craig, PhD

In this study I explore indie culture specifically as a manifestation of Slavoj Žižek’s cultural capitalism, in which we are encouraged to consume in order to do culture and capitalism “better.” In this sense, indie positions itself as a means to do authentic culture independently of the “mainstream,” which it subsequently positions as an impure and inauthentic cultural space contaminated by corporate interests, conformity, and mindlessness. However, the dialectic relationship between indie and the mainstream reveals that indie instead functions as a culturally superior position of consumption of and within mass culture. Through analysis of both the dominant narrative of indie culture as well as the ironic indie subject, I demonstrate how indie functions as a position of (upper) middle class consumption that upholds class distinction while repressing antagonistic voices that challenge the exploitive social structure upon which indie finds its articulation and with which it is aligned.