

(EL)²:

EXPERIENTIAL LEARNING, ENGAGED LEARNERS

A Brandeis Symposium Spotlighting
Undergraduate Students' Exploration,
Discovery, and Innovation

MARCH 26, 2009



The 2009 Experiential Learning Symposium Committee

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The Experiential Learning program was developed to foreground an already vibrant aspect of the university's mission: preparing students for full participation in a changing society, capable of promoting their own welfare, yet remaining deeply concerned about the welfare of their communities. Brandeis offers students and faculty a wide range of hands-on learning and teaching opportunities including independent research, experiential learning courses, lab work, internships, community-engaged learning projects, studio and art work and study abroad programs.

The (EL)² symposium represents the work of more than 50 Brandeis students, faculty, and staff and is organized around four themes: Social Justice, Activism, and Community; Investigation and Discovery; Global and Cross-Cultural Exploration; and Innovation, Enterprise, and Social Entrepreneurship.

Sponsored By:

Office of the Dean of Arts and Sciences, Hiatt Career Center,
Academic Services, Department of Community Services

For more information please visit the program's website at
www.brandeis.edu/experientiallearning

Schedule

2:00-3:00PM

Plenary Session

Opening remarks by President Jehuda Reinharz

Panel session: Experiential Learning at Brandeis

Chair: Dean Adam Jaffe

INTERNATIONAL LOUNGE, USDAN

3:00-4:00PM

Poster Session

USDAN: LOBBY, HIATT CAREER CENTER, STUDENT
FINANCIAL AND ACADEMIC SERVICES

4:00-5:00PM

Panel Sessions

Social Justice, Activism, and Community

Chair: David Cunningham, Sociology

INTERNATIONAL LOUNGE, USDAN

Investigation and Discovery

Chair: Angela Gutchess, Psychology

RAPAPORTE TREASURE HALL

5:00-6:00PM

Panel Sessions

Global and Cross-Cultural Exploration

Chair: Daniel Terris, Office of Global Affairs

INTERNATIONAL LOUNGE, USDAN

Innovation, Enterprise, and Social Entrepreneurship

Chair: Detlev Suderow, International Business School

RAPAPORTE TREASURE HALL

6:00-6:45

Reception Open to All

INTERNATIONAL LOUNGE, USDAN

Plenary Session

Chair: Dean Adam Jaffe

2:00-3:00PM International Lounge, Usdan

**From the Streets to the Field: Soccer and Youth
Empowerment in Ecuador**

Brooke Rosenbauer '09, HSSP

Mentor: Eva Thorne

In the wake of financial crisis and political instability, Ecuador has experienced challenges in providing sufficient training and employment opportunities to its workforce. As a result, many young adults turn to the street. Although the impact of unemployment and poverty in Latin America is undeniable, so is the power of soccer. An NGO called "A GANAR" channels this passion for soccer into a three-phase program to provide vocational job training to vulnerable youth. For three weeks, I traveled up and down the Andes from Quito to the cloud forest, the jungle, the coast, and back to the city to conduct in-depth conversational interviews with A GANAR participants, visit program sites, and evaluate the program based on my experiences. This presentation will provide an honest account of A GANAR's impact on youth in Ecuador.

Bilingual Children's Book Discussing Bolivian Migration

Nadine Channaoui '10, Psychology

Mentor: Eowyn Greeno

For the duration of the fall 2008 semester I studied abroad in Bolivia, where I carried out a month-long, field-work-based Independent Study Project. My investigation explored the extreme prevalence of migration to other countries, primarily for work, and its emotional repercussions for Bolivian children who have one or both parents abroad. During my research I volunteered with an NGO, interviewed professionals, and conducted group "charlas" (or chats) with children of migrant parents. I presented my findings in a form that is accessible, relatable, and helpful to young people: a bilingual children's

book entitled "My Mommy Is Not in Bolivia with Me". My book, which is part of the recently founded Bilingual Children's Literature Reciprocity Project, not only raises awareness about Bolivian life and culture, but also contributes to the production of affordable books in a country where accessible children's literature is few and far between.

How Do We Remember Our First Impressions?

Roe Gilron '09, Neuroscience, Psychology

Mentor: Angela Gutchess

We all form first impressions of our peers every day. My study examines what parts of the brain regions are involved in the formation of first impressions. It is known that a region in the frontal cortex, the medial prefrontal cortex, is heavily involved in social judgments. It is not well understood how this area communicates with other brain regions associated with memory formation (such as the hippocampus) in order to ensure that we remember our first impressions. Using fMRI (functional Magnetic Resonance Imaging), my honors thesis investigates the brain mechanisms that allow us to store first impressions in our long-term memories.

Criminals: A Look Behind the Stereotype

**Yael Zbolon '09, English and American Literature,
American Studies**

Mentor: Melissa Stimell

After an internship in South Boston's probation department and observation of the court system as an intern for Judge Leslie Harris, my perspective on the traditional view of a criminal has undergone considerable alteration. Working with probationers in South Boston, an area notoriously known as a "crime community" for its extensive drug abuse, I was able to see not only the ramifications of drug use, but how the court system attempts to rehabilitate citizens. Judge Harris, a judge who oversees juvenile cases in Dorchester and Downtown Boston, too, seeks foremost to teach youths the value of education and

respect so that they may grow to be contributing members of society. By working closely with members of the legal system and those who violate the law, I have witnessed how the legal system is concerned with more than purely punitive measures. Rather, the probation officers, judges, and attorneys seek to aid the people who have violated the law in order to get their lives back onto a healthy track. Working in the law has taught me more about humanity than it has about legal jargon.

Social Justice, Activism, and Community Panel Session

Chair: David Cunningham, Sociology

4:00-5:00PM International Lounge, Usdan

The Mississippi Truth and Reconciliation Project

Becky Sniderman '10, Sociology, Philosophy

Mentor: Sheilah Coleman

Throughout the civil rights era, intimidation and violence against African-American residents in Mississippi was widespread, though existing research has failed to produce a systematic account of such acts. The research component of the Truth Project, as organized by Professor Cunningham and a number of other social scientists, attempts to construct a representative picture of anti-civil rights violence. This research, in turn, will inform a state-wide public truth and reconciliation process. This project will provide Mississippi residents, in particular those who have been victimized by racial violence, with a means to have their experiences publicly documented, recognized, and validated. As in South Africa, the inter-racial dialogues enabled by the Truth Project provides a way to achieve a contextualized truth about race relations in Mississippi, which can contribute to broader justice and reconciliation within communities across the state.

Healthy Waltham
Mariah Rich '10, HSSP
Mentor: Laura Goldin

As an intern for Healthy Waltham I helped executive director Judy Fallows and the organization further its mission to educate students in the Waltham community about how to live a healthy lifestyle. I worked with students at the YMCA after school program at the Stanley school to create a garden and a garden club. We started the garden in Spring 2008 behind the school in an area that was void of any previous horticulture. With many helpful hands and hard work we grew a beautiful garden full of a various tomatoes and beans. After the weather turned cold and we prepared the garden for the following season, I ran environmental education based activities to further involve the children with the world around them. Overall this experience provided the opportunity to foster an appreciation of the natural world in the next generation.

Community-Engaged Representative and Fellow for Immigration Issues

Rachel Sier '11, History, Sociology
Mentor: Silvia Arrom

During the fall, I served as the Community-Engaged Representative (CER) for Illegal Immigration Issues, and met directly with non-profit organizations, churches, and school administrators in order to research needs that were not being currently met in the Waltham community. My primary goal was to identify an issue that could be addressed in the context of the Brandeis course, Latino/a History. I partnered with Professor Silvia Arrom and my CER mentor, Dean Elaine Wong to develop a civic engagement project in which Brandeis students fostered relationships with recently immigrated middle school students in the English Language Learner program as well as assisting with Waltham High School's weekend MCAS prep. I am currently serving as the Community-Engaged Fellow for Latino/a History and strongly believe that the real

world application of knowledge enhances a student's capability to learn and think critically.

My Jobs in Art and Law and a Surprising Intersection
Ronya Gordon '09, Art History
Mentor: Melissa Stimell

As a senior Art History major and Legal Studies minor I was looking for an internship that could help direct me professionally. I have been fortunate enough to spend this semester interning with the Volunteer Lawyers for the Arts of Massachusetts. At the VLA I have been able to combine my two academic interests by working on a variety of projects that range from daily client intakes to working on more specialized projects that include estate planning and attorney training. I have also spent the last three years as a gallery guide at the Rose Art Museum and, in light of recent events, my internship at the VLA and my job at the Rose have begun to overlap. Because of this, I have been able to take advantage of my experiences at both the VLA and the Rose and turn them into opportunities for campus involvement and student collaboration.

Investigation and Discovery Panel Session
Chair: Angela Gutchess, Psychology
4:00-5:00PM Rapaporte Treasure Hall

Religion and Family Dynamics: How Religious Involvement Impacts Adjustment to Parental Divorce
Bosiljka Milosavljevic '09, Psychology
Mentor: Ellen Wright

Family structure and dynamics are important factors in the shaping of young individuals. Divorce and familial conflict can have detrimental effects on child development, oftentimes being related to problems such as depression, anxiety, and substance use. The following study aims to further investigate

the impact that parental divorce has on the adjustment of college students in numerous areas of life (academic, social, and emotional). Degree of perceived family conflict will also be examined as a contributor to adjustment levels. We also hope to determine whether individuals who have higher levels of religious involvement show better adjustment after parental divorce than those without strong religious ties. This will allow us to see whether religious involvement buffers the effects of family break-ups.

Reactions of Small Molecules with (PNP)Pd Fragments

Daniel Graham '10, Chemistry

Mentor: Christine Thomas

Last year, we succeeded in synthesizing an example of an unbridged, dinuclear Pd(I) complex. A few, brief tests to probe its reactivity produced surprising results in the activation of small molecules. Only a few molecules were initially examined, however, and recent developments, including a successful reaction with oxygen gas and carbon dioxide, suggest that more exciting reactions have yet to be discovered. Conclusions from a series of reactions with small molecules and their implications for further utilization will be reported.

Farther Away, Closer to Home

Rachael Chanin '10, Psychology

Mentor: Adi Grabiner-Keinan

This past summer, I interned at the National Vietnam Veterans Art Museum in Chicago, IL. The NVVAM collects, preserves, and exhibits artwork created by veterans and inspired by war. Before beginning my internship, my main goal was to explore the intersection of art and Psychology. I was interested in discovering how symptoms of Posttraumatic Stress Disorder impacted the artwork in the museum's collection. Would artwork about war, created by those that fought in it, be different than artwork on the same topic created by civilians? Would there be any salient themes to the pieces in the

museum? While I was able to address these questions, my summer ended up becoming much more personal than I could have ever imagined. Although my stay at the museum was brief, my time there allowed me to form a stronger relationship with my father, a Vietnam veteran.

Debajo de la Alfombra (Under the Rug): An exploration of Sexual Education in Santiago

Simona G. Lang '10, HSSP, Hispanic Studies

Mentor: Sarah Hoenig

The independent study project I completed while abroad with SIT: Education and Social Change investigates the history and importance of sexual education in Chile and the present reality of Chilean youth according to the Instituto Nacional de la Juventud and from my own personal interviews and observations in four public high schools in Santiago. The study describes and presents the advantages and disadvantages of various educational interventions in the field of sexuality in reference to evaluating the current policies and governmental provisions facing this issue. My investigation also demonstrates the way in which Chilean culture influences the understanding and realization of sexual education in terms of a current conflict of identity within Chilean youth, the cultural significance of gender and the influence of machismo, the authority of the Catholic Church, and attitudes towards homosexuality.

Global and Cross-Cultural Exploration Panel Session

**Chair: Daniel Terris, Office of Global Affairs
5:00-6:00PM International Lounge, Usdan**

Memorials to Empire: The Fate of British Colonial Cemeteries in India after 1947

Anna Rothman '09, History, English

Mentor: Rudolph Binion

When the British withdrew from their Indian colonies on August 15, 1947, they left behind the graves of its two million citizens who had died in India since the 18th century. For years the governments of India and Britain have argued about who should have to take care of them. Should the local Christian population pay to maintain cemeteries in which colonial racial policies had denied them burial? As the last of the former colonials die, who will maintain their heritage in the Subcontinent? And how are some Indian provinces turning these cemeteries into genealogical tourist attractions? In "Memorials to Empire", we will take a look at how gravestones of everyday people still provoke strong feelings more than 60 years after the end of the British Raj in India.

Surgical Care in Developing Countries: An Interactive Research Experience at the World Health Organization

Hannah Lust '10, HSSP

Mentor: Peter Conrad

Interests in medical science and public health motivated me to seek an internship at the World Health Organization (WHO) within the Emergency and Essential Surgical Care project while studying abroad in Geneva, Switzerland. The project entailed research on the state of surgical care in developing countries and efforts to promote the lack of essential surgical care as a global public health issue. My main responsibilities included compiling data, preparing a poster about the project

for the Global Ministerial Forum on Research for Health in Bamako, Mali, and reviewing and editing reports of in-country training workshops. My interactive research experience allowed me to learn from experts in the fields of surgery, anesthesia, and public health. I also became more familiar with the workings of the WHO, an international public health bureaucracy. Overall, my internship at the WHO encouraged my interest in surgery and compelled me to continue working in the public health domain.

Dynamic Stagnancy: The State of Metal Mining in South Ecuador

Jake Yarmus '10, Politics

Mentor: Sarah Hoenig

Metals form an essential part of the physical construction of modern society. However, the extraction process can have devastating effects on the local communities, even as they can stimulate national economies. During my study abroad experience in Ecuador, I delved into the complexities of this conflict. Moving throughout Southern Ecuador, I interviewed a number of anti-mining activists, read federal pro-mining reports, and attended a number of rallies. However, small-scale gold mining served as the focal point of my culminating radio documentary. Using my experiences in these communities, I attempted to create a holistic picture of the realities that face a nation, a culture, and the individual miners as the government looks to open the country to large-scale mining interests.

Cetacean Conservation in Madagascar

**Lauren Wild '09, International & Global Studies: Global
Environment**

Mentor: Eowyn Greeno

During my study abroad experience in the spring of 2009, I spent a month working for the Cetacean Conservation and Research Program (CCRP) in Southwestern Madagascar. I spent my time doing on-the-ground conservation work in

villages to raise awareness of dolphins and whales. We introduced a song competition to the villages for kids to write songs about protecting whales and dolphins, an idea I doubted at first. However, after living in the villages, and seeing how important music was to their culture, I found that this was one of the best methods of conservation. It was tough being a foreigner in Madagascar; the first word I learned was “Vahaza” which means “white person”. I found that the color of my skin mattered more than I could imagine, but I also learned so much about myself, as well as other cultures and societies of the world.

**Innovation, Enterprise, and Social
Entrepreneurship Panel Session**
**Chair: Detlev Suderow, International Business
School**
5:00-6:00PM, Rapaporte Treasure Hall

Enviro-Economics: A Summer with Conservation Capital
Andrew Franks '09, Environmental Studies, Biology
Mentor: Laura Goldin

Business and real estate development are often assumed to be at odds with environmental concerns. During the summer of 2008, I interned with Conservation Capital, LLC, an environmental consulting company that serves as an example of how developers can work with environmental interests in a positive way. Brad Raffle, the CEO of Conservation Capital, calls these “enviro-economic opportunities” because these projects not only help preserve greenspace and natural resources, but they also increase the value of the land. I believe this is an innovative way to approaching environmental problems. As part of my summer internship, I was intimately involved in several of the ongoing projects and learned a lot about how these two seemingly competing interests, developers

and environmentalists, can work together to achieve a result that is beneficial for everyone.

Role of Stakeholders in the Clean Technology Industry
Daniel Wengrovitz '09, Economics, Mathematics
Mentor: Preeta Banerjee

Recent research illustrates that sources of funding can impact the way in which technology develops (Banerjee, 2009). The diverse constituency of clean technology innovation includes consumers, financial investors, firms and the government. Each group has unique, and sometimes conflicting, demands which clean technology has to satisfy. Ultimately, a firm can be profitable and socially responsible; however, it is not the responsibility of the firm to be solely socially responsible. My research takes an in-depth look at each of the constituency groups and tests a sample of 267 firms to provide insights to entrepreneurs regarding the impact of stakeholders on technology development in the clean technology industry.

Microfinance Loan Patterns in Rural Bangladesh
Faiyaz Talukdar '09, Economics, Mathematics
Mentor: Sheilah Coleman

I am investigating the impact of microfinance on households in Bangladesh, by utilizing a World Bank household survey and exploring how microfinance loans have enabled changes in household expenditures. I am answering specific questions about changes in expenditures of households, in terms of purchase of land and house, and changes in expenditures on agricultural input and poultry. These investments have the potential of creating long term income generating small entrepreneurial businesses such as poultry farming and harvesting crops.

**Negotiating Ideology: International Expectations and
Argentina's NGO Sector**

Mariel Gruszko '10, Anthropology, Economics, Latin American and Latino Studies

Mentor: Elizabeth Ferry

In 2002, following an economic crisis, Argentina's government turned to groups in civil society to help it deal with the immediate aftermath. From 2002-04, the government worked closely with these groups, incorporating them into federally- and locally-funded projects and high-level discussions about changes to Argentina's legal and political system. Popular political dialogue postulated that cooperation between the government and civil society could alter Argentina's political culture and incorporate grassroots activists into governmental structures that had ignored them in recent history. In my field interviews with members of three Argentine NGOs, however, I found that attempts to integrate these professionalized parts of civil society into decision-making structures had produced few concrete results. Funders' expectations that NGOs would change political culture had not materialized. As possible explanations for this deferred cultural change, I examine how an influx of foreign funding has affected the number and structure of NGOs, NGO employees' ideological approaches to their jobs, and specific attempts within NGOs to reform their own organizational cultures.

Poster Session

**3:00-4:00PM Usdan: Lobby, Hiatt Career Center,
Student Financial and Academic Services**

Visual Encoding Through Eye Movement

Aaron Glick '09, Neuroscience, Biology, Psychology

Mentor: Jozsef Fiser

Humans are able to internally process visual information and use this knowledge to interact with the external environment. One behavioral measure of the visual encoding process is eye movement. Each movement is directed to encode certain parts of the visual scene. The length of time and number of eye movements during a given visual scene can provide insight into the complex relationship between cognition and visual encoding processes. Ten subjects watched natural scene movies under three cognitive conditions.

The subjects were asked to either 1) pretend they were walking in the scene, 2) search for a white paper, or 3) given no specific instructions. The prior cognitive state of the subject did not affect the length of time and number of eye movements.

Further research will investigate differences in the position of eye movements.

Volunteer Vacations

**Adora Gaul '10 (International and Global Studies),
Anastazyia Vareschi '09 (History), Gal Zilberberg (Biology
and Anthropology)'10, Gina Ahn '09 (Psychology,
Economics), Tiffany Roberts '11 (Middle Eastern Studies,
International and Global Studies)**

Mentor: Eileen Gallagher

Volunteer Vacations is an alternative spring break organization that provides a unique opportunity for students to participate in week-long community service projects around the country.

This poster presentation is a telling demonstration of the experience students had on this year's trips to New York and Maine.

Internship with the Museum of Fine Arts, Boston**Allison Young '09, Art History, Anthropology****Mentor: Adi Grabiner-Keinan**

Through the Hiatt Career Center's World of Work Fellowship, I had the opportunity to intern with the Museum of Fine Arts, Boston, one of New England's most prominent art museums. At Brandeis I have learned how to approach the study of art in an academic setting with a critical and scholarly eye, but this internship provided me with the experience of engaging Boston's youth with the MFA's collection. I participated in two museum learning programs, one in which we led youth groups through tours and gallery activities in the museum, and another in which we visited community centers and schools and brought creative activities to them. This presentation will summarize the mission of the MFA's Museum Learning and Public Programs department and my role within it. In times like these it is extremely important to understand the impact that the arts can have on our communities, a lesson relevant to our community at Brandeis today.

Brandeis Buddies: Greater Campus Unity through Volunteerism**Amber Kornreich '12 (Major: undeclared) Amy Stricoff '11 (Major: Psychology, Sociology)****Mentor: Lucas Malo**

Brandeis Buddies is a new community service group within the Waltham Group that seeks to help build positive relationships between Brandeis student volunteers and developmentally disabled adults who work on campus in the dining halls and residence halls. Our group meets on campus for recreational activities such as board games, crafts and themed parties. We also have expanded the relationship that Brandeis already has with the Greater Waltham Association for Retarded Citizens by bringing student volunteers to off campus events for the disabled population in the Waltham area. Brandeis Buddies

provides a way to unify groups of people on campus who would not usually interact very often.

Greening the Office and Classroom**Anum Irfan Khan '10 (Environmental Studies, HSSP), Carrie Watkins '12 (Major: undeclared), Lauren Kraus '10 (English and American Literature), Michael Campell (Biology)****Mentor: Laura Goldin**

As part of the Greening the Campus and Community class offered by Professor Goldin last semester, the group worked on a project to incorporate sustainability into the offices and classrooms at Brandeis. We employed a combination of a top down - bottom up approach, by engaging faculty and different academic departments and also reaching out to students at a grassroots level to create a cyclical approach to sustainability on campus. The group focused on energy efficiency and reduction in paper use, combining our ideas as a team and also using strategies that have been successful at other academic institutions as a model, and worked with the Sustainability Co-ordinator to create and execute their message-presentation.

Me, Myself, and I: Does Referencing the Self Improve Memory Across Ages?**Becky Sokal '10, Neuroscience****Mentor: Angela Gutchess**

Previous studies have shown that referencing the self improves memory performance of both young and older adults. In the current study we presented subjects, both young and older adults, with a list of adjectives while inside the fMRI machine. Adjectives were classified based on valence and whether or not they were stereotyped for older adults. As each adjective was presented, subjects were asked to determine whether or not the word described them. Once outside of the magnet, subjects were given surprise recall and recognition tasks. We plan to analyze the fMRI data to determine what areas of the brain

were active during encoding of the adjectives and how this compares to recall and recognition of those adjectives.

Leisure and Pleasure: Wine, Games and Luxury in the Classical World

Caitlin Dichter '09 (Classics, Anthropology), Lee Marmor '10 (Classics, History), Sarah Costrell '10 (Classics, Math)

Mentor: Ann Olga Kolaski-Ostrow

To the Ancient Greek and Roman people, leisure activities were varied and available to all social classes. These included pursuits involving drinking, gambling, theatrical entertainment, hunting, bathing, and engaging in sexual acts. Through the study of archaeological evidence, modern researchers have learned about these activities. As student interns in the Classical Artifact Research Center, or CLARC, an on-campus space for the curatorship of the Classics Department's private artifact collection, we have created an exhibit concerning "Leisure and Pleasure" to be displayed in the Mezzanine of the Goldfarb library using objects from the CLARC's collection. These objects include gambling dice, wine vessels, jewelry, smoking paraphernalia, and musical instruments. Our exhibit will showcase these artifacts in order to educate the Brandeis population about this particular aspect of Classical antiquity as well as to provide a valuable way to experience some of the tasks associated with museum curatorship.

DeisBikes: Brandeis Bicycle Rental Program

Caroline Cappello '11 (Theater Arts), Chenchao Lu '09 (Biology and Economics), Lea Giddins '11 (International and Global Studies), Lisa Frank '09 (Politics), Paul Balik '10 (Politics), Susan Paykin '11 (International and Global Studies)

Mentor: Laura Goldin

DeisBikes is Brandeis' free undergraduate bicycle rental program. Our mission is to promote bicycling as desirable means of transportation in an effort to strengthen a culture of

sustainability on campus. Based out of the Shapiro Campus Center, DeisBikes is a fuel-free and fun alternative to the BranVan, campus shuttles, and personal cars, which all emit harmful pollutants into the environment. By offering day-long loans of high-quality bikes to the Brandeis undergraduate community, DeisBikes provides a convenient way to get to class, encourages off-campus exploration, and sustains a healthy body and environment.

Medical Information on the Internet: Evaluation of Usage in College Students

Carolyn Chyu '09, HSSP, Biology

Mentor: Jessica Paulus

The Internet has become an important medium for seeking health information with advancing technological innovations. However, the scope of misinformation is vast and uncontrolled. The quality of information can be critical to health outcomes, particularly to patients who wish to seek information in privacy to self-diagnose and self-treat. Brandeis undergraduates were recruited for this HSSP thesis research to evaluate the perceptions and behaviors of the unique college-student population in using the internet for medical information.

All Springs

Catherine Wagner '09, Theater Arts

Mentor: Susan Dibble

Art has an onward flow of propulsion. The journey of art, and life, is devoid of a traditional notion of direction, relying on discoveries made along the process. These fleeting essences of clarity that punctuate art's creation journey do not arise from a blind sense of accord and appeasement, but from underlying human passions and imagination. The negotiation of these elements starts to slowly strip the inhibitions, behaviors, and masks used in ordinary, daily existence. "All Springs," a physical theater piece based on Ovid's "Metamorphoses," explores the idea of art's ability to reveal a higher level of

enlightenment. To accomplish this goal, this piece draws on influences from Mary Zimmerman's play, "Metamorphoses," and the training practices of Double Edge Theatre, a physical theater company from Ashfield, Massachusetts.

Choreographed and directed by Catherine Wagner, with the artistry of collaborators Molly Haas-Hooven, Daniel Newman, and Allison Vanouse, "All Springs" will be presented at the Rose Art Museum during the Leonard Bernstein Festival of the Arts, on April 25 and 26 at 6:30 pm. "All Springs" also offers a special way to honor the Rose Art Museum in its final days, a place devoted to the artist's eternal quest for understanding.

**Stanley's Got Talent: Junior Brandeis Achievers
Cecelia Watkins '11 (Islamic and Middle Eastern Studies),
Heather Bernstein '12 (Neuroscience, Language and Linguistics)**

Mentor: Lucas Malo

Junior Brandeis Achievers is a new eight-week afternoon enrichment program that is held at the Stanley Elementary School every Wednesday from 3:00 pm to 4:30 pm from February to April. JBA just started this semester with eighteen enthusiastic volunteers and seventy-seven spirited students ranging from kindergarten to fifth grade. Within this program there are five clubs, Build It, Cool Arts, Creative Writing, Magnificent Musical, and Wacky Science, which help teach students crucial higher-level learning skills. Volunteers collaborate to write their own lesson plans weekly, allowing children to acquire new skills while also providing a fun environment to develop and pursue their interests. The final week of this program is a fun-filled day where family and friends gather to see both performances and presentations as students display what they have learned.

Advocating Rights

Chelsey A. Dionne '10, Psychology, HSSP

Mentor: Laura Goldin

The Tenant Advocacy Clinic in Waltham is a community resource that assists tenants and landlords to remedy problems, answer questions and search for housing. For my project I am running this clinic with the help of volunteer advocates from the Legal Studies course: Women and Justice in the Environment. The clinic is open to anyone Mondays and Thursdays from 7-8:30. Along with this I am interning at the MCAD (Mass. Commission against Discrimination) in Boston as an intake specialist and investigator. By utilizing the knowledge acquired from both projects it is my goal to advocate and promote individual rights to as many people as possible. Subsequently, I hope the chain will continue, and those I advocate for will in turn teach their peers how to protect their rights as well.

High-resolution Structure of the Central Pair Complex in Eukaryotic Flagella

Claudia Vasquez '10, Biology

Mentor: Daniela Nicastro

I am modeling the central pair complex (CPC) of eukaryotic flagella so that its structure and role can be analyzed. The CPC is thought to have a role in the regulation of the molecular motor dynein that causes flagella to move. Using the raw data of cryo-electro tomography on the flagella of *Chlamydomonas*, I use software to create a model of the CPC microtubules, and then run a software that averages repeating units in tomographic data. The output is an image that is the composite of all the averaged cross sections. This image emphasizes the structure of the CPC microtubules and reduces the noise in the electron tomograms. The results of the images and models I make are a step in helping to elucidate the exact mechanism of the regulation of flagellar movement. This information is important because it can be applied to human cilia and flagella

because the structure is conserved. This information could in turn help to understand human ciliary diseases and target drugs to dysfunctional flagella and cilia.

**Life in the Emotion Lab: Two Student Perspectives
Dawn Schwartz '09 (Psychology), Jonah Cohen '10 (Psychology)**

Mentor: Derek Isaacowitz

This project encompasses the perspectives of two students who work in Derek Isaacowitz's Emotion Lab. Such perspectives offer a holistic view into the opportunities of independent research in psychology as well as the benefits of being part of a dynamic lab team. Dawn Schwartz, a senior, was a Research Assistant for one year and is currently doing an Honors Thesis. Her thesis examines preferences in number of options among older and younger adults. The study attempts to understand the underlying mechanisms affecting why older adults prefer fewer options than younger adults. Jonah Cohen, a junior, has been a Research Assistant for two years and hopes to pursue a thesis. Jonah has enjoyed his time in the lab, having the opportunity to analyze data, run participants, and take advantage of the lab community. For his independent research, he hopes to look at the relationship between self-described religiosity and happiness.

Generational Healing from Trauma in Post-Holocaust Literature

Emily Watkins '10, Politics, Islamic and Middle Eastern Studies

Much energy has been devoted to studying the way an individual heals from a traumatic event. However, when an entire people experiences a trauma, the recovery process is different and can span across generations. This project studies the way the perception of the Holocaust changes across generations and how these changes reveal a healing process. The project focuses on three Jewish writers, Nelly Sachs,

Savyon Lievrect, and Nicole Krauss, all survivors of the Holocaust or their descendants, and explores how their works of fiction express their understanding of the trauma of the Holocaust. Researching creative expressions of emotion inspired more creativity, and thus the project is a set of three art pieces displaying each writer and the connections between them.

**Chemical Coupling Between BZ Emulsion Drops
Eugene Wolfson '10, Physics, Mathematics, Computer Science**

Mentor: Seth Fraden

We studied an oscillatory Belousov-Zhabotinsky (BZ) chemical reaction compartmentalized in liquid drops surrounded by oil. A drop continuously switches between a red (reduced) and a blue (oxidized) state. We use image analysis techniques to quantitatively identify the coupling rules. Following the principle of inhibitory coupling we expected that first neighbors of a given drop delay their oscillations by one third of the period of oscillation. Our results confirmed this simple rule for most oscillations.

Another observed behavior which we do not yet understand is traveling waves. We observed primarily low-frequency waves and also some high-frequency-low-intensity waves. By illuminating the system, we reset all the drops to their oxidized state. The next step of the experiment is to reset drops selectively to further investigate the wavelike patterns. Potentially we can use complete knowledge of the rules to construct a neural network.

**Máma, No Me Dejes: Sacrifice for a Better Life in Bolivia
Hanna Rosenthal-Fuller '09, Psychology**

Mentor: Adi Grabiner-Keinan

I spent the fall of my junior year abroad in Cochabamba, Bolivia, where I discovered that Bolivia's weak economy makes it nearly impossible for families to survive on local

wages. Many mothers of young children choose to emigrate to Europe or the United States, hoping to earn enough to support their family and children back in Bolivia. I became fascinated with this phenomenon and wondered how children of emigrants perceived the situation. This short documentary explores the effects of emigration on Bolivian children and the implications of transnational families through the eyes of those left behind.

Development of Educational Materials and a Method of Cell Cycle Synchronizaiton in *E. coli*

Hayley Moore '09 (Biology)

Mentor: Sue Lovett

With the aid of a Schiff Fellowship, I will be working to prepare experiments featuring microscopy which will be carried out this summer during a genetics course at Cold Spring Harbor Laboratories. My project also included studying the interaction of two proteins that regulate the bacterial response to nutrient deprivation, but a problem with the experimental controls prevented me from continuing that line of research. Certain cellular processes occur at specific times in a cell's growth and development, and studying these processes requires all of the cells in a sample to be in the same developmental phase. I shifted my research focus and aided in developing a method of synchronizing the growth of bacterial cells, specifically by pausing and restarting the growth cycle. Using microscopy, I demonstrated that the cells began dividing synchronously after this pause and release, indicating the cells were in the same developmental phase.

Determining the Maya Site of San Bartolo's Trade Partners in Antiquity with Obsidian Trace Element Analysis

Jeffrey Dobereiner '09, Chemistry, Anthropology

Mentor: Charles Golden

For my senior thesis I used an X-ray fluorescence spectrometer to perform trace element analysis on obsidian procured through

excavations at the Maya site of San Bartolo. Obsidian can be utilized to determine trade routes because each of the potential sources has a unique chemical signature. The nearest obsidian sources to San Bartolo are located hundreds of kilometers from the site. By correlating the chemical composition of obsidian pieces found at San Bartolo with those of volcanic glass flows in the Mesoamerica, the specific geographic origin of the material can be determined. This acquisition data can then be compared with that of other Preclassic (2000 BCE – 200 CE) centers and potential trade relationships in antiquity can be determined.

Waltham Kids' Club

Jennifer Rawson '10 (HSSP), Jessa Reisner '09

(Educational Studies, Comparative Literature), Josh

Hochman '09 (International and Global Studies), Lauren

Reibstein '11 (Psychology), Mariah Rich '10 (HSSP)

Mentor: Lucas Malo

Waltham Kids' Club is a long running program serving two of the subsidized housing developments here in Waltham, Dana Court and Prospect Hill Terrace. Bringing the children from these communities to Brandeis, we program a one day a week educational and recreational enrichment experience. We give these children a safe place to go after school, mentors to form relationships with, and a way to begin to visualize themselves at a university. Our presentation explores how this program has been run, its successes and, sometimes, failures, the way in which it impacts the greater Waltham community, and the way in which Waltham Kids' Club impacts student life here at Brandeis and has served as a precursor and a support for the community-engaged learning projects here at Brandeis.

Navigating the Bicultural Experience: Cognition in American Jews

Joseph Polex Wolf '11, Neuroscience, HSSP

Mentor: Angela Gutchess

If we think of culture as a framework through which one perceives the world, how do individuals exposed to multiple cultures navigate between their various cultural lenses? Last semester, I served as a research assistant on Allie Indeck's Senior Honors Thesis. We explored differences in social cognition of American-Jewish bicultural individuals by presenting pictures of either "American" or "Jewish" cultural symbols. These pictures brought one of the cultural identities to mind for 48 American-Jewish students. After picture priming, participants completed a series of cognitive tasks. Although our hypotheses were not supported, Jewish denominational preference was found to affect some of our cognitive measures, which indicates that individual differences in denominational preference may affect cognition for American Jews. We are currently conducting a follow-up study that examines the effect of Jewish denominational preference on cognitive tasks. I would like to present the research I conducted with Allie as well as highlight the future directions for the study.

T.I.P.S. (Tutoring in Public Schools): Mentoring and Empowering Waltham's Youth

Josh Jerusalmi '11 (Near Eastern and Judaic Studies),

Lara Solinsky '11 (Psychology)

Mentor: Lucas Malo

T.I.P.S. (Tutoring in Public Schools) is a community service organization that sends students from Brandeis to elementary schools in Waltham. Volunteering in various capacities, each student brings his or her own strengths to fill the needs of the teacher, school, and community. Volunteers enrich the classroom environment by assisting teachers with classroom activities, providing students with one-on-one attention, and,

above all, serving as mentors. The schools know they can depend on T.I.P.S. to directly fulfill their needs, whether it is running PTO sponsored events or organizing various after-school programs. Each year our program is met with increasing enthusiasm in the Brandeis and Waltham communities, resulting with T.I.P.S. doubling in number of volunteers and expanding into more schools, programs and classrooms. The volunteers truly make a difference in children's lives and better the Waltham Community they live in.

Taking Lessons from a Learning Organization: Interning at the Hesed Avraham Jewish Charitable Center of St. Petersburg

Kseniya Khmara '10, HSSP, International and Global Studies

Mentor: Tom Mackie

When we call to make a doctor's appointment, go to a hospital, or search for information on health providers, we have a general idea of what type of answer to expect. I had not realized how systematized life in America was until I went to Russia, where simply "interning", like volunteering and non-profit work, is not at all a commonplace phenomenon. Thus, the Hesed Avraham Jewish Charitable Center of St. Petersburg operates not only outside of the typical Russian model of healthcare, too often a model of neglect and ignorance, but is laying down the foundations of a new approach to community health – based on volunteerism, charity, and solidarity. Despite being an atypical internship, however, my experience at Hesed Avraham expanded my understanding of health and healthcare, bridged the gap between Brandeis HSSP academics and on-site application, and acted as an example of apt leadership and effectual organization structure.

Breaking Free: Victims of Domestic Abuse Starting Over in Quito, Ecuador

Lisa Fitzgerald '10, HSSP

Mentor: Eowyn Greeno

While studying abroad in Ecuador last fall, I worked in the Comisaría de la Mujer, a center for victims of domestic abuse in Quito. The women were being told in PSAs and pamphlets to leave their violent spouses and start a new life. However, the only concrete help they were receiving were legal services, such as restraining orders, provided by the Comisaría. More than 30 women each day would come in hoping to break free from the cycle of violence, but there are currently no services available to help these women to deal with being ostracized by their families and communities, with finding a job, or a place for them and their children to sleep at night. Because of these challenges, it is common for the victim to return, out of desperation, to live with the aggressor. This experience opened my eyes to the necessity of understanding the perspective of a target population to developing relevant policy.

Exploring Gender Differences in Depression and Coping: A Review

Mariam Akbar '10, Psychology

Mentor: Ellen Wright

Researchers have investigated gender differences in depression for years: Who is more susceptible? What could be the factors behind this? Closely related to depression is coping style of individuals, and the relationship between the two: Does one method of coping (positive reappraisal, for instance) aid individuals suffering from depression? Which coping styles have found to be most helpful, and which are maladaptive? A review of previous research surrounding these topics will explore some of these questions in greater detail, looking for relationships among gender, coping, and depression.

Living the Conflict: Bringing Positive Change to Arab-Israeli Relations in Israel

Marnina Cowan '10, International and Global Studies and Hebrew Language and Literature

Mentor: Eowyn Greeno

We refer to them as Arab-Israeli, but has anyone asked them how they view themselves? During my semester long internship with the organization “Makom Bagalil” (“A Place in the Galilee”), I conducted an English leadership program for Arab teenagers in Northern Israel. Together, the students and I struggled with issues of identity and what it means to be an Arab high-school student living in Israel. My experiences with the teenagers have taught me that anyone can be a vehicle for positive change in the Arab-Israeli conflict as long as there is willingness to break cultural boundaries and to use friendship and communication as a basis for forming intercultural relationships.

Very Large Array Studies of Microquasar SS433

Matthew Mallory '09, Physics

Mentor: David Roberts

Detailed studies of the Galactic microquasar SS433 contain information on the creation and propagation of radio jets. We present radio wavelength images of SS433 from observations taken with the Very Large Array throughout the summer of 2003. The 4.86 GHz and 8.46 GHz observations provide comprehensive maps that hold a wealth of details about the source. The intensity plots provide data of the kinematics of SS433 and the total flux of the source. The kinematic models calculated for the motion of the source fit well for the inner section of the precessing jets, but are consistently off the mark when further down the jet. The polarization images that contain information on the magnetic fields in the jets are the focus of the analysis and prompt many questions about the source and how it works.

My experience with CTG Energetics**Michael P. Camp '09, Biology****Mentor: Laura Goldin**

In the Fall 2008 Semester I held a position as intern at the CTG (Constructive Technologies Group) Energetics office in my hometown of Providence, Rhode Island. CTG Energetics is the building commissioning based arm of the CTG Inc. parent company. CTG is focused on the integration of sound building practices by providing design and quality control team members to both High-performance building as well as Sustainable Communities Modeling. I learned about the private sector pursuits of overall sustainability through the pursuit of LEED certification in conjunction with integration of cutting edge-technology to both new construction and existing building rehabilitation. I also learned about the necessity of incorporation of both the private and public sector towards reaching a lower carbon-footprint in our immediate future. After my tenure as Intern ended at CTG, I returned to the firm to become a part-time administrator and green building consultant.

The Effect of Denervation and Reinnervation of Sympathetic Neurons on Myocytes**Nithya Setty '09, Biology****Mentor: Susan Birren**

It is important for cardiac tissue to be properly innervated by sympathetic neurons for proper development and function. When the heart is incompletely or abnormally reinnervated after pediatric cardiac surgery or a heart attack, it can cause heart defects and problems through life and adulthood. It is important to understand the effects of improper denervation and reinnervation of myocytes, heart cells, so that therapeutic strategies can be developed to manage these problems caused after pediatric surgery or a heart attack. We will observe the effects of innervations and reinnervations of sympathetic

neurons onto myocytes at similar time points to determine the changes in observable properties of the myocytes.

Delivering Stigma: Increasing Rates of Prenatal HIV Testing among Hesitant Women**Orli Mintz '09, HSSP****Mentor: Tom Mackie**

Vertical transmission of HIV can be significantly reduced through adequate prenatal testing and appropriate treatment of anti-retroviral medications. This intervention decreases the rate of Mother-to-Child transmission from 25% to 2%; yet, many women are unaware of these statistics and refuse testing due to the associated stigmas. As a result, newborns continue to contract HIV: 67 infants born to the US in 2005 tested positive for the virus.¹ Reacting to similar statistics, a major delivery hospital in the North East launched a research initiative in 2006 to determine the percentage of pregnant women who know their HIV status at delivery. Two years later, I worked with the hospital's Infection Control department to identify the reasons behind this persistent neglect of prenatal HIV testing. The data we collected enabled new hospital and state policies responsible for a 40% increase in compliance, and a reduced incidence of infant HIV.

¹CDC. HIV/AIDS Surveillance Report, 2005. Vol. 17. Rev. ed. Atlanta: US Department of Health and Human Services, CDC; 2007:1–54.

Automusic: Algorithmic Composition of Themes & Variations**Peter Swire '10, Computer Science, Music****Mentor: Tim Hickey**

Automusic is software developed to compose music without human intervention. It has rules for (roughly) what sounds pleasing, and it attempts to create something that follows these rules. Each voice in a polyphonic piece is reduced to a different class of problem, and each problem is solved in

layers. To do this, it draws on information from music theory, human perception, artificial intelligence, machine learning, and preexisting idiomatic structures in music. The end result is music at the push of a button.

The Stigma of Alzheimer's Disease

Sara Brandenburg '09, HSSP

Mentor: Sheilah Coleman

Alzheimer's Disease was only coined in 1910 as a result of Alos Alzheimer's study of senility and dementia. Prior to this, what we now refer to as Alzheimer's Disease was referred to as 'dementia', a clinical term of psychological incompetence. My presentation focuses on the evolution of stigma around this disease, and whether the receipt of a medical 'diagnosis' and label has helped or hurt the experience. Researcher difficulties gaining commitment by caregivers for persons with Alzheimer's Disease to agree to photograph their loved one for research purposes provided hints of stigma that endures despite medicalization of the disease. The question also was whether such stigma was generational. Surveys were given to students between the ages of 18 and 22 and also to adults between the ages of 40 and 70. Survey results and their implications for understanding stigma related to Alzheimer's Disease and its medicalization will be discussed.

Design and Testing of Biochemistry Laboratory Course Modules

Seth Lieblich '10, Biochemistry

Mentor: Dagmar Ringe

In contrast with many other universities a biochemistry lab course is not currently offered at Brandeis. Over the past several months I have designed and tested several course modules for a biochemistry lab focusing on human Sod1 in order to develop advanced laboratory skills. After an extensive literature search, comparing different proteins, I chose human Sod1 because it has an extensive body of published literature

yet several mutants have not been biochemically characterized. Towards this end I have completed the first half of the course modules: Bioinformatics, cloning, expression, purification, and inhibition activity assays. Additionally, I have developed a course guide outlining the proposed layout of such a course and the full range of modules.

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