THE RUHLMAN CONFERENCE
A CELEBRATION OF STUDENT ACHIEVEMENT

APRIL 27, 2011
It gives us great pleasure to welcome you to the 2011 Ruhlman Conference. Made possible by the Barbara Peterson Ruhlman Fund for Interdisciplinary Study, the Ruhlman Conference is intended to foster collaboration among students and faculty across the disciplines and to enhance the intellectual life of the College. The event provides an opportunity for students, faculty, staff, friends, family, and alumnae to come together in celebration of student achievement.

The conference celebrates intellectual life by sponsoring a communal, public event where students have an opportunity to present their work to an unusually wide audience. By providing an opportunity for public presentation of what is often a private, isolated activity, the conference demonstrates that research can be part of the ongoing conversation in a community of scholars.

Attentive to the diversity of student interest and accomplishment, the Ruhlman Conference includes a variety of formats for the presentation of student work: papers, panels, posters, exhibitions, musical and theatrical performances, interactive teaching presentations, and readings of original work. Representing the work of nearly 300 Wellesley students, the 2011 Ruhlman Conference is organized around three major themes: Humanities, Science and Technology, and Social Sciences.

This year marks the 15th anniversary of the Ruhlman Conference. To celebrate this special occasion, we have invited some of the participants from the first Ruhlman Conference back to campus. These returning alumnae will participate in two panel discussions during lunch, where they will speak about how undergraduate research, in general, and their participation in the Ruhlman Conference, in particular, have influenced their lives over the past 15 years.

We encourage you to experience the scope and richness of student achievement at the conference and wish to express our thanks and congratulations to all students and alumnae participating in this special event.

The 2010–2011 Program Committee for the Ruhlman Conference

Rukmani Bhatia  
Class of 2012
Amy Chandler-Nelson  
Office of the Provost and Dean of the College
Sunayana Dyer  
Special Events
Donald Elmore  
Chemistry
Hannah Galin  
Class of 2013
Meredith S. Martin  
Art
Judy Mitchell  
Office of the Provost and Dean of the College
Joy Playter  
Office of the Class Deans
Carlos Ramos  
Spanish

Sara Spinella  
Class of 2011
Sally Theran  
Psychology
Akila Weerapana  
Economics
Heather E.E. Woods  
Access and Digital Media
The first Ruhlman Conference was held on the afternoon of May 1, 1997. Looking back on that day, the 150 students who volunteered to participate in the inaugural conference—and the more than 50 faculty members who served as their advisors—were creating a new Wellesley tradition. In the months preceding the conference, members of the program committee had worried that it might be difficult to recruit students to participate in this ambitious communal experiment. Indeed, that was the question on Barbara Ruhlman’s mind throughout much of the year. Once the day of the conference had arrived, however, a new question had come to occupy their minds: What if no one attends? The conference had been organized into concurrent sessions scheduled from 3–7pm and, because no change to the class schedule was made that day, late-afternoon classes overlapped with the first block of conference presentations. At a place already overpopulated with lectures, performances and other community events, who would be interested in attending yet another optional event?

Many were. The student, faculty and staff turnout that afternoon was respectable, if not large, and faculty and staff outnumbered students in most sessions. Of greater significance, both those who presented and those who attended the first conference left with the impression that they had participated in something special, urging those in charge of planning the conference to find ways to increase involvement among all constituencies of the College. The following year the conference was scheduled for a day on which no classes would be held, the number of blocks of concurrent sessions was increased, and a community-wide lunch was added. The number of students presenting at the conference rose to 250, the number of faculty and staff advisors doubled (to 100), as did the number of sessions. In the years to follow, the conference would consistently attract between 250–300 student participants sponsored by well over 100 faculty and staff, representing virtually every academic department and program of the College.

Why was the Ruhlman Conference such a success? A student on the first program committee for the conference provided insight into that question when she suggested that “Wellesley was a very academic place, but it wasn’t as intellectual as it might be.” By that I believe she meant that Wellesley students set high academic standards for themselves and their peers, that they worked hard to achieve those standards—but that they spend more time talking about how hard they work than about what they are working on. Although the Ruhlman Conference provided a venue to applaud and celebrate the hard work necessary to produce excellent projects, its focus was on the results of that hard work—the knowledge, understanding, and joy that comes through serious intellectual engagement.

If asked to describe how the conference has changed over time, most would probably say that the presentations have gotten better (more polished and professional) and that the audience has grown larger and more diverse (students, faculty and staff being joined by a growing number of family members, friends and alumnae). These changes aside, many qualities of the Ruhlman Conference have remained constant: the opportunity for students to present their work (often for the first time) to a large and varied audience; the justifiable pride students feel in demonstrating their depth of knowledge of a particular subject; the
inspiration these presentations serve for students new to the College; and the occasion for all members of the Wellesley community to observe the immense range of intellectual work being done across the campus. Ten years later, it is not difficult to see why the Ruhlman Conference has become such a valued Wellesley tradition.

Lee Cuba is William R. Kenan, Jr. Professor of Sociology and former Dean of the College. While Associate Dean, he worked with Barbara Ruhlman to develop the plan for the Ruhlman Conference and chaired the program committee from 1997–1999.

On the occasion of the 10th annual Ruhlman conference, Lee Cuba (one of the instigators of the original conference, the other being Barbara Ruhlman) wrote that the conference was an instant success and quickly became a valued Wellesley tradition. As we celebrate the 15th anniversary, it is hard to imagine Wellesley without the Ruhlman Conference. It is built into our calendar and our consciousness. Students look forward to their presentations as they plan their research projects. Faculty mark the years by remembering which students participated in a Ruhlman panel or poster session. Deans describe the conference to candidates for faculty positions as one of the great selling points of the institution. Other colleges planning student research conferences look enviously at the structure we have built.

Part of the joy of the day is the way in which traditional divisions are broken down. Science talks happen in Pendleton, poetry readings in the Science Center. Panels are created that cross disciplines and make new connections; the audiences are filled with staff, faculty, and students interacting with the presenters and with one another in new ways.

And part of the joy comes from Barbara Ruhlman’s obvious delight in her creation. The gratitude that flows back and forth between her and the students adds to the special nature of the day and is a manifestation of the connections among generations of Wellesley alumnae.
### Conference at a Glance

<table>
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<tr>
<th>Themes</th>
<th>9:30–10:40am</th>
<th>11am–12:10pm</th>
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<tr>
<td><strong>Humanities</strong></td>
<td>Three Musical Performances (long performance) Jewett Auditorium</td>
<td>I Feel Bad about My Laugh: Life Lessons from Dead Serious (interactive teaching presentation) SCI 104</td>
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<td>The Secret Life of Histone Fragments: Exploring Histone-derived Antimicrobial Peptides (short talks) JAC 450</td>
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<td>Whales, Weevils, Wnt, and Waban: Thesis Research at Wellesley and Elsewhere (short talks) PNE 339</td>
<td>From Structures to Stress: Biochemistry Seniors Talk about Their Theses (panel discussion) PNW 117</td>
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<td>Music and Dance—Performance and Analysis (short talks and short performance)</td>
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<td>Checking &quot;Other&quot;: Labels in a Multicultural World (short talks)</td>
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<td>Ars Bene Dicendi: Rhetoric in Medieval Music (long performance)</td>
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<td>Mapping the Margins from Spenser to Nabokov (short talks)</td>
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**key:**
- **FND**—Founders Hall
- **JAC**—Jewett Art Center
- **PNE**—Pendleton East
- **PNW**—Pendleton West
- **SCI**—Science Center
Conference Schedule

8:30–9:30am
Continental Breakfast
Continental breakfast served in Pendleton Atrium and Science Center Focus.

9:30–10:40am
Humanities
Three Musical Performances (long performance) Jewett Auditorium
P. Lucy McVeigh, Katherine Lu, Serena Liu, and Virginia Hung
PicoBees and Social Synapses: Creating Interactive Spaces that React and Inspire (exhibition)
Science Center 104
Alexandra Olivier
Transgression and Translation from Sea to Shining Sea (short talks) Science Center 278
Michelle Lam and Natalie Rojas, “100 Pains of Subtitling: Language, Culture, and Nodame Cantabile”
Jennifer Yoo, “The ‘Remaking’ of Japanese History through Historical Fiction and Media: The Shinsengumi, the Last Group of True Samurai”
Stephanie Gomez, “Narratives of Transgression or Tales of Subversion? Gender and National Drag in Transnational Caribbean Performance”
Sydney Hodge, “Reclaiming the Humanity of the Marginalized in Postcolonial Literature”
Topics in Change Making: Promoting Equal Education, Food as a Human Right, Reincorporating Excluded Populations, and Spiritually-based Grassroots Community Action (panel) Pendleton Hall West 212
Hannah Z. Catzen, “Selfless Service Overflowing: A Memoir and Analysis of the Peacemaking Functions of Bal Ashram in Varanasi, India”
Vivian Secaida, “The Human Right to Food: Possibilities and Prospects in the Modern Capitalist System”
Differences in Language Use: Insights from Sociolinguistic Survey Data (panel) Pendleton Hall West 116
Laura Dulude, “Gay and Straight Students’ Perceptions of Sexuality and Racial/Ethnic Terms”
Taylor Bass, “How Do You See Color?”
Adriana DelGizzi, “Age, Use, and the Acceptability of Online or Abbreviated Language”

Science and Technology
The Secret Life of Histone Fragments: Exploring Histone-derived Antimicrobial Peptides (short talks) Jewett Art Center 450
Kathryn Pavia, “What’s in a Residue? The Importance of Proline in Antimicrobial Peptide Activity”
Kathy Chen, “Simulating Antimicrobial Peptides on a Lipid Membrane”
Elizabeth Lawler and Maria Bustillo, “Hipposin: Just for the Halibut”
From Sand to Sky: Using Spectroscopy to See Clearly (short talks) Science Center 396
Lamiya Mowla, “The Ultraviolet Spectrum of the Eclipsing Binary System 22 Vul”
Yomay Shyur, “Studying Molecular Photoabsorption in the UV: Measurements and Models”
Laura Ann Stevens, “Quantifying the Composition of a Mixed Carbonate-Siliciclastic Sand Matrix: A Comparative Study between XRD, XRF, and Point Counting Methodology”
Kara Felich, “Do Muscles Make a Good Swimmer? Linking Fish Form and Fitness”
Erica Namigai, “The Role of Wnt and Dpp Signaling on Postembryonic Leg Development and Lipid Homeostasis in the Flour Beetle, Tribolium castaneum”
Weixia Guo, “Impact of Habitat Fragmentation on Genetic Structure of Endemic Weevil Populations in the Galápagos Archipelago”

Gnomes, a Nude Male, and an Evil Queen: Exploring the Possibilities and Limitations of Touch-input Devices (panel discussion) Founders Hall 120
Consuelo Valdes, Michael Lintz, Heidi Wang, Taili Feng, and Michelle Ferreira

Social Sciences

Phoenix from the Crashes: Life after a National Crisis (short talks) Pendleton Hall East 239
Lauren S. Baker, “Retiree Well-being in a Recession: Measuring Happiness”
Nan McGarry, “Greed in the Law: An Examination of Moral Discourse in American Legal Proceedings”

Seed Money: The Economics of Developing Countries (short talks) Pendleton Hall East 139
Weiye Kou, “Care for Money”
Rebecca Winslow, “The Language of International Bioethics in India”
Aditi Patel, “Policies for Poverty Alleviation: An Examination of Two National Programs in India and Brazil”
Emily Chan, “Whose Champions? NGOs and Civil Society in China”

Every Breath You Take: Our Complicated Relationship with Air (short talks) Pendleton Hall West 117
Leslye Penticoff, “Tracing the Flight of Climate Migrants: Predicting Human Migration Patterns under Global Climate Change”
Danielle Good, “An Ill Wind: Questions of Indigeneity and Representation in Cape Wind”

10:40–11am Break
Continental breakfast served in Jewett Lobby, Pendleton Atrium, and Science Center Focus.

11am–12:10pm

Humanities

I Feel Bad about My Laugh: Life Lessons from Dead Serious (interactive teaching presentation) Science Center 104
Claire Ayoub, Olivia Kingsley, Simi Oberoi, Lilli Johnson-Moffet, Katie Byrnes, Kat Chen, Haley Harris, Kate Leonard, Isabel Custodio, Marge Dunn, Grace Leeson, and Erica Dohring

Italianità in the Home (short performance) Pendleton Hall West 220
Alexandra Kurland

Girls, Girls, Girls: Nefertari to Gaga (short talks) Pendleton Hall East 239
Emma Wright, “Restoring Beauty: The Conservation History of the Tomb of Nefertari”
Sarah Gray, “Lady Gaga: Beyond the ‘Poker Face’”

Divine and Contemporary Art: The Miracle and the Mustache (short talks) Pendleton Hall West 212
Casi Schwisow, “Depicting Divinity: God’s Will or the Artist’s?”
Sarah Shaer, “Burj Al Arab: Monument, Icon, and Façade”

Theater of the Emotions: Proust to Pinter (short talks) Pendleton Hall West 116
Olivia Brown, “Proust’s Cathedral: In Search of Lost Time as the Transubstantiation of Life into Literature”
Melody Pao, “A Voice of Reason and Intimacy: The Female Confidante in the Tragedies of Jean Racine”
Flannery Wheeler, “Daniel’s Decision: The Ethics of Virtue and Utilitarianism in George Eliot’s Daniel Deronda”
Olivia Kingsley, “Living in Absurdity”
Science and Technology

From Birth to Perception: The Life of a Neuron (short talks) Founders Hall 120
Natalie H. Matthews, “Nitric Oxide Immunoreactivity and Adult Neurogenesis in Procambarus clarkii”
Rachel Kery and Julia Gall, “Does Ablation of Blood-generating Tissue Alter the Production of Adult-born Neurons?”

My Body, Myself (short talks) Pendleton Hall East 139
Lindsey Hildebrand, “Does This Relationship Make Me Feel Fat? Interactive Relations among Personality, Relationship Status, and Body Image”
Katherine Tierney, “Cultural Body Ideals and Acculturative Stress: A Study of Body Image and Psychological Outcomes among Latina and Brazilian Girls”
Roxanne Solis, “Health Behaviors, Dispositional Optimism, and Exercise Self-efficacy at Wellesley College”
Taysir Mahmoud, “Independent or Interdependent? The Influence of Self-construal on Self-presentation”

From Structures to Stress: Biochemistry Seniors Talk about Their Theses (panel discussion) Pendleton Hall West 117
Sara Spinella, “The Activity and Mechanism of Action of Three Novel Antimicrobial Peptides”
Kaylyn Williamson, “Elucidating the Connections between Cytoplasmic Mitotic Cyclins and Cell Wall Integrity in Saccharomyces cerevisiae”
Stephanie See, “When Cells Get Stressed: Characterizing the Interaction between Poly (ADP-ribose) and RNA-binding Proteins in the Stress Granule”

Environmental Policy: National and Global Perspectives (panel discussion) Jewett Art Center 450
Danielle Gaglini, “Lead Levels in Drinking Water across the Globe”
Ana Thayer, “It’s a Bird, It’s a Plane, No, It’s a High-speed Train: Determinants of National Investment in High-speed Rail”

Social Sciences

Hazardous to Your Health: The Limits of Medicine (short talks) Science Center 278
Yaffa Fredrick, “The AIDS Challenge: Examining Health Policy Choice in Africa”
Jiwon Helen Shin, “Religion, Society, and the Limits of Medicine”
Margaret Chidothe, “The Impact of Increased Access to Antiretroviral Therapy (ART) on Childhood Education and Nutrition in Zambia”
Emily Scofield, “From Television to Your Medicine Cabinet: The Impact of Direct-to-Consumer Advertising of Prescription Drugs”

You Have Been Served: Comparing Justice in Different Legal Systems (short talks) Pendleton Hall East 339
Jamie Cumby, “Levinas, Dussel, and the Possibility of the Ethical State”
Susan Goldman, “Behavioral Responses to Unilateral Divorce Laws”

A Slice of Knowledge: A Sampling of Schiff Fellows in the Social Sciences (short talks) Science Center 396
Siwen Chen, “Battle Against Internet Piracy in France—Does ‘Hadopi’ Affect Sales in the Media Industry?”
Ellyn Schmidt, “Children’s Understanding of the Link between Sensory Perception and Knowledge”

12:10–1:30pm Break

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1:30–2:40pm

**Humanities**

**Writing the Travel Essay: The Traveler and the Destination (panel discussion)** Pendleton Hall East 139
Alexis Black, Elizabeth Hubertz, Sarika Narula, and Rebecca Winslow

**The Great Globe Itself: A Year of Theatre at Wellesley College** (long performance) Ruth Nagel Jones Theatre
Members of the Wellesley College Theatre Community; Directors and performers

**Scholars as Singing Actors: The MUS 240 Opera Workshop Ensemble in Performance** (long performance) Jewett Auditorium
Mariami M. Bekauri, Mary E. French, Sarah A. Halbert, Marina Heinrich, Alexandra M. Kurland, Marranda B. Major, May-Elise C. Martinsen, and Elizabeth A. Yazgi

**Music and Dance—Performance and Analysis** (short talks and short performance) Pendleton Hall West 220
Chayva Lehrman, “Voice of the Unseen: Code-Switching in Jewish Israeli and Palestinian/Arab Israeli Rap Music”
Rebecca Graber, “Hora: A Program for Computer-aided Choreography”
Dan Grieneisen, Victoria Boyd, Gena Hong, Elizabeth Lawler, Alison Lee, Laura Stearns, and Julia Cohen, “Synergy: Jazz and Rock for...Strings?”

**Chocolate, Conflict, and Identity in Spain and Mexico** (short talks) Science Center 278
Madeline Weeks, “Sinfully Delicious: Chocolate in Mexican Religion and Society”
Jami-Lin Williams, “Space, Conflict and Identity: Writing/Reading Barcelona”
Margaret Van Cleve, “Immigration and Xenophobia as Seen Through Contemporary Spanish Film”

Lucia Nhamo

**The Uncanny Tudor: Where Do You Call Home?** (exhibition) Jewett Art Gallery
Ali Crank

**Outside In: Searching for Empathy through Painting** (exhibition) Jewett Art Gallery
Angela Huang

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**Science and Technology**

**Understanding Cell Communication** (poster session) Science Center Focus
Emma Chung, Judy DeWitt, and Tanya Yajnik, “Altered Gene Expression in the Heart of Hypoxia-acclimated Goldfish”
Sang-Hee Min, “Transcranial Direct Current Stimulation (tDCS) and Its Implications for Amusia and Aphasia Patients”
Jana Qiao, “Peptidases and Reproductive Hormones: The Effects of Estradiol on TOP and PEP in the Brain”
Tania Dhawan, “Effects of the Peptide-degrading Enzyme Thimet Oligopeptidase on Testicular Development and Testosterone Production”

**From Small to Significant: Creating and Using Chemical Reactions** (poster session) Science Center Focus
Kristal K. Chamberlain, Lisa M. Jacob, and Chan Myae Myae Soe, “Ultrahigh Vacuum Studies of Electron-induced Reactions of Methanol”
Alice Kwan, “Synthesis of a Key Precursor toward the Total Synthesis of the Promising Anti-cancer Natural Product, Spiroxin A”

**Architecture, Structure, and Evolution** (poster session) Science Center Focus
Caroline Kwon, Mia Howard, and Katherine Connolly, “An Examination of the Photoprotective Mechanisms and Gas Exchange Characteristics Utilized by a Variety of Plants”
Michelle Xu, Zihan Dong, and Sandra Lam, “Architecture of Photosynthetic Biofilm Growth in Flow Cells”
Nikki Rossetti and Kyomi Igarashi, “Investigating Budding Yeast Bni4 as a Putative Target of Cytoplasmic Cdk Activity”
Chelsea-Ann Patry, Wendy West, and Julia Wucherpfennig, “Before or After? Colonization Time and Island Emergence for Flightless Beetles in the Galápagos”
Understanding Relationships across Time (poster session) Science Center Focus
Sarah Siegel, “Emotional Processing Deficits and Eating Attitudes in College Women”
Aryanne de Silva, “The Relationship between Preschool Children and Their Imaginary Companions”

Medicines Are Molecules (panel discussion) Pendleton Hall East 339
Shoshana Bachman, Adina Badea, Erika Buckle, and Brianna MacLeod

Social Sciences
It All Counts: Policy Changes in Schools All around the World (short talks) Founders Hall 120
Anna McCarthy, “English-centric: Influences of Recent European Union Educational Policies on English Instruction in Spain”
Rebecca Cannon, “The Effects of School Openings on Students: Evidence from Honduras”
Catherine Wu, “The Effect of School Sanitation Facilities on School Attendance Rates in India”

A Mother’s Work Is Never Done: Attitudes about Mothers across Time and Place (short talks) Science Center 104
Ikhlas Saleem, “From the Universal to the Cultural: The Construction and Transformation of Motherhood among African American Muslim Communities”
Erica H. McGinnis, “Mothering the Republic: Womanhood and Maternity in Early American Life and Literature”
Michaela Wilkes Klein, “Pregnancy in the Concentration Camps: A Means of Resisting Dehumanization”

Change Begins at Home: Drawing Knowledge from Our Community (short talks) Pendleton Hall West 117
Anna McCarthy, “English-centric: Influences of Recent European Union Educational Policies on English Instruction in Spain”
Rebecca Cannon, “The Effects of School Openings on Students: Evidence from Honduras”
Catherine Wu, “The Effect of School Sanitation Facilities on School Attendance Rates in India”

Women’s Historical Memory and Community (panel) Jewett Art Center 450
Catherine Poon and Elizabeth Pan, “Remembering WWII in Japan through a Feminist Perspective”
Sarah Parmelee, “Is the Personal Still Political?: Lesbian Separatism Today”
Rachel Delano, “100 Years of Letters: Questions Women Ask about Birth Control”

Sustainable Sustenance: Greening Wellesley’s Food System (panel) Pendleton Hall West 212
Sonrisa Cooper, Amanda Faulkner, Liz Flanagan, Alex French, Daniella Gagnini, Genevieve Goldleaf, Cataia Ives, Leslie Penticoff, Serena Ryan, Sarina Sawyer, Bracha Y. Schindler, Casey Sedlack, and Ana Thayer

2:40-3:00pm Break Refreshments served in Pendleton Atrium and Science Center Focus.

3:00-4:10 Humanities Ars Bene Dicendi: Rhetoric in Medieval Music (long performance) Pendleton Hall West 220
Natasha Roule

Mapping the Margins from Spenser to Nabokov (short talks) Pendleton Hall West 212
Gabrielle Linnell, “Mapping the Invisible: Guides, Maps and the Role of Cosmography in Edmund Spenser’s La Faire Queene”
Angelina Del Balzo, “Portraying the ‘Strolling Trade’: Gypsies and Nomadism in the Eighteenth Century Novel”
Rae Yan, “Private Rooms, Professional Spaces, and Youthful Ambition in Charles Dickens’s Orphan Novels”
Farah Ahmed, “Looking at Queer Desire in Pale Fire and Death in Venice”

Science and Technology Small Particles with Big Potential: Gold Nanoparticles in Cancer Research (short talks) Science Center 104
Linh Vu and Olivia Hulme, “Synthesis of Electroactive Molecules for Surface Modification of Gold Nanoparticles”
Rhea Choi and Victoria Abrenica, “‘Pimp My Ride’: Designing a Multipurpose Nanovehicle for Cancer Therapy”
**Rocks, Roofs, Roots (short talks) Pendleton Hall West 116**
Kate Philbrick, “Studying a Piece of the North American Continent in Yellowstone National Park”
Elizabeth Rowen, “Transgenerational Plasticity in *Pericaria lapathifolia*: Lamarckian Ideas within Darwinian Evolution?”
Bracha Y. Schindler, “Ecological, Social, and Political Factors Influencing Biodiversity on Green Roofs”

**Silent Speech and Fictional Friends: Understanding Signed Language and Imaginary Friends in Hearing-impaired Individuals (short talks) Pendleton Hall East 339**
Sam Grossmith, Jenny Lu, and Rachel Magid, “The Relationship between Spatial Mapping and Language in Deaf Children”
Catherine Jaramillo and Andrea Akemi Takahesu Tabori, “Are Deaf Nicaraguan Signers Borrowing Facial Gestures from Hearing Nicaraguans?”

**Bee Flexible: Adaptation and Genetic Diversity in Fish and Insects (short talks) Founders Hall 120**
Emma Britain and Shaheen Rangwalla, “Waggle Dance Communication and Genetic Diversity of Honey Bees”
Michelle Vogelzang and Johanna Ascher, “Specializations in Diet and Feeding Morphology within a Bluegill Sunfish Population”
Christina Tran, “Demographic History and Population Structure of a Flightless Weevil Pioneer from the Galápagos Archipelago”

**Can You Hear Me Now? Understanding Molecular Messages in Biological Systems (short talks) Pendleton Hall East 239**
Camille Hamilton and Karen Kemirembe, “Dependence of the Timing of Manduca sexta Molts on Dietary Cues”
Heidi Park and Jennifer Fishbein, “Investigating the Biochemical Function of Wolbachia Type IV Effectors”
Pui Man Rosalind Lai, “Understanding Estrogen Effects of an Androgen Metabolite in Prostate Cancer”
Christina Sun, “MOER to the ER Story: An Alternative Mechanism for Estrogen Signaling in the Brain”

**Masters of Magnetic Resonance: Probing Biological Phenomena with Magnetic Resonance Imaging and Spectroscopy (panel discussion) Pendleton Hall West 117**
Stephanie Huang, “Magnetic Resonance Study of Neurochemistry and Brain Volume of Rett Syndrome in a Mouse Model”
Hatice G. Yayla and Eugenia White, “All-in-One Multifunctional Nanovehicle for Cancer Therapy”
Adriane G. Otopalik and Yi Ling Dai, “Tracking Cells from Blood to Brain: Using MRI to Study Neurogenesis in the Crayfish”
Weiya Mu, “Using Magnetic Resonance Techniques to Examine a Mouse Model of Schizophrenia”

**Social Sciences**

**The “Real” World? How Perceptions Shape Reality (short talks) Pendleton Hall East 139**
Laila Alawa and YoonAh Lee, “Are They Men or Women? Perceptions of Scientists’
Jessica Chung, “Can Collective Sentiment Expressed on Twitter Predict Political Elections?”
Jean Lee, “Childhood Bullying in the Twenty-First Century”

**4:10–4:30pm Break**
Refreshments and hors d’oeuvres served in Pendleton Atrium and Science Center Focus.

**4:30–5:40pm Humanities**

**Flute Sonatas of J.S. Bach: Music Culminating the Baroque Era (long performance) Pendleton Hall West 220**
Adriane G. Otopalik, Claire McRee, and Sara Li

**The Soul, the Song, and the Screen: Constructing the Black Experience (short talks) Pendleton Hall East 239**
Kris Arden, “The Ethnographer’s Trick: Zora Neale Hurston and the Female Trickster in African American Folklore”
Galen Danskin, “Writing the Self: Identity Construction in Twentieth Century African American Literature”
Boafoa Offei-Darko, “Discrepancies between Black Literature and Their Film Adaptations”

**Gendered Peace Lenses: Abortion, Rape, and Reproduction (panel)** Pendleton Hall West 212
Joséphine Kabambi, “Perception and Representation: A Womanist Analysis of Western News Media Representations of Wartime Rape in the Democratic Republic of Congo”
Yasmin Kassam, “Understanding the Impact of 1996 Welfare Reform on Immigrant Access to Prenatal Care”
Hilary M. Allen, “Undue and Unnecessary Burden: An Investigation of Abortion Access and the TRAP Effect”

**Science and Technology**

Victoria Nichols, “Visual Discomfort is Highly Predictive of Attention-Deficit/Hyperactivity Disorder Symptoms in College and Beyond”
Lily Tsoi, “Video-game Training Improves Precision of Smooth Pursuit Eye Movements”
Sarah Koopman, “Keep Your Eye on the Ball: Watching and Playing Sports Linked to Smooth Pursuit Precision”
Cleo Stoughton, “Cardinal Color Axes in Macaque Monkeys”

Creativity in Math: Visualizing Different Forms of Arithmetic (interactive teaching presentation)
Pendleton Hall West 116
Amanda Curtis and Jane Rieck

**Social Sciences**

Checking “Other”: Labels in a Multicultural World (short talks) Pendleton Hall East 139
Priscilla Gutierrez, “Latinas: Experiences Combining Work and Family Life”
Alice Lee, “Meaning of Race in Multicultural Campus Life”
**Conference Planner**

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*Please note that people will be leaving or entering the room between or even during presentations.*
**Frequent sources of support for student/faculty research:**

- Brachman Hoffman Fund
- Elizabeth Davis Cook Student Research Fund
- Pamela Daniels ’59 Fellowship
- Educational Research and Development Committee
- Virginia Fiske Fund
- Howard Hughes Medical Institute
- IBM Research Fund
- Amabel Boyce James Fund for Summer Research in the Sciences
- Keck Northeast Astronomy Consortium Grant
- Sara Langer Fund for Research in Geosciences
- John and Elizabeth Alden Little Science Fund
- Janina A. Longtine Fund for Summer Research in the Natural Sciences
- Massachusetts Space Grant Consortium Grant
- Georgeanne Miller Mulhern Fund for Student/Faculty Research in the Sciences
- National Institutes of Health
- National Science Foundation
- Office of the Provost and Dean of the College
- Barbara Peterson Ruhlman Fund for Summer Research in the Social Sciences
- Jerome A. Schiff Fellowships
- Joan and Herbert Schilder Student Research and Travel Fund
- Staley Fund for Cancer-related Research
- Robert and Karl Staley Fund
Abstracts
9:30–10:40am

Humanities

Three Musical Performances (long performance) Jewett Auditorium
P. Lucy McVeigh ’11, Music, Katherine Lu ’11, Economics, Serena Liu ’13, Biological Chemistry, and Virginia Hung ’13, Mathematics
Advisor: David Russell, Music

Works for Soprano and Cello: Jenny Olivia Johnson (Wellesley faculty): New Work for Soprano, Cello, and Electronics

Harrison Birtwistle: 9 Settings of Lorine Niedecker
Sung by P. Lucy McVeigh ’11 (David Russell, faculty, cello)

Antonín Dvořák: Trio in E Minor, Op. 90
Dumky
Katherine Lu ’11, violin
Serena Liu ’13, cello
Virginia Hung ’13, piano

The music department will present two performances showcasing members of the Chamber Music Society. P. Lucy McVeigh, will perform two contemporary works for soprano and cello: the premiere of a new work by Wellesley faculty composer, Jenny Olivia Johnson, and Harrison Birtwistle’s Nine Settings of Lorine Niedecker, a project from the fall semester. Also, Katherine Lu, Serena Liu, and Virginia Hung, will perform Dvořák’s Dumky Trio, a work which they have been studying for both semesters this year.

PicoBees and Social Synapses: Creating Interactive Spaces that React and Inspire (exhibition) Science Center 104
Alexandra Olivier ’11, Computer Science
Advisors: Franklyn Turbak, Computer Science, and Robbie Berg, Physics

PicoBees are small wireless computers for creating large-scale interactive spaces. Users connect sensors and actuators to a collection of communicating PicoBees and specify their behavior using PicoBlocks, a visual programming language. Not limited to LEDs and motors, PicoBees support actuators appropriate for larger spaces—they can wirelessly control battery-controlled toys and power strips. An illustration of the power of the PicoBees toolkit, Social Synapses, is an installation designed to provoke contemplation about the interconnectivity of the Wellesley community. Sensors placed around the Science Center monitor various types of activity (e.g., pedestrian and network traffic) generating “action potential” that can illuminate artificial neurons placed around the Focus. Social Synapses emphasizes the power wielded by the Wellesley student body over the individual; it makes visible the increased illumination that cooperation permits, both literally and metaphorically. (Research supported by the Office of the Provost and Dean of the College and the Pamela Daniels Fellowship.)

Transgression and Translation from Sea to Shining Sea (short talks) Science Center 278

100 Pains of Subtitling: Language, Culture, and Nodame Cantabile
Michelle Lam ’14 and Natalie Rojas ’14
Advisor: Lawrence Rosenwald, English

Over the past decade, a dedicated forum of amateur Japanese-to-English translators have surfaced online, subtitling manga, anime, and live dramas. One of the most popular Japanese stories to make it to all three forms of adaptation is Nodame Cantabile, a story about an aspiring conductor, Chiaki, and developing pianist, Nodame, who fall in love with each other. Joining this amateur community of translators, we subtitled the theatrical trailers for both Nodame Cantabile, The Finale: Part I, and Part II, with the intention to spread the appreciation of Nodame Cantabile to a targeted, American, English-speaking audience. This presentation will discuss the difficulties in subtitling these trailers syntactically and culturally, and the adaptation from movie to trailer. In addition, this presentation will analyze the transition from manga to anime, and to live drama, of Nodame Cantabile.

The “Remaking” of Japanese History through Historical Fiction and Media: The Shinsengumi, the Last Group of True Samurai
Jennifer Yoo ’12, East Asian Studies
Advisor: Carolyn Morley, Theatre Studies

The memorial site for the Shinsengumi, a historical group of samurai, is visited more frequently today than 20 or so years ago. The cause is not a revived interest in Japanese history, but rather the transformed presence of samurai in popular media such as anime and television series. Ironically, popular media looks back not to history, but to the first historical novel on the Shinsengumi written in 1964 by Shiba Ryotaro. For my final project, I am translating this novel in order to understand how popular media transform the perception of Japan’s history and cultural identity.

Narratives of Transgression or Tales of Subversion? Gender and National Drag in Transnational Caribbean Performance
Stephanie Gomez ’11, American Studies and Spanish
Advisor: Paul Fisher, American Studies

My project aims to analyze three transnational Caribbean drag performers, both historical and imaginary, as figures that disrupt notions of monolithic national identity. I consider and compare Cuban-American singer La Lupe, queer performance artiste Carmelita Tropicana, and Puerto Rican author Mayra Santos-Febres’s drag queen protagonist in her novel, Sirena Selena vestida de pena. As drag performers, these figures embrace excess; however, they not only perform the gendered acts that label them male or female, but also create what we might call a national drag that allows them to embrace multiple cultural identities in order to subvert stable definitions of nations and national identity. (Research Supported by the Mellon Mays Undergraduate Fellowship.)

Reclaiming the Humanity of the Marginalized in Postcolonial Literature
Sydney Hodge ’11, English
Advisor: Margaret Cezair-Thompson, English

Jean Rhys’s Wide Sargasso Sea (1966) provides a fuller characterization of Antoinette “Bertha” Mason, Jane Eyre’s madwoman in the attic. In Charlotte Bronté’s influential nineteenth century novel, Bertha is a savage woman from the West Indies, but does not differ from the stereotyped colonialist portrayals of those originating from colonized regions, as she receives no distinct traits of humanity. Rhys gives greater dimension to Antoinette’s character in a “prequel,” examining the progression of Antoinette’s life with nuance and attention to the complex effects of colonialism. Through her use of multiple narrators, Rhys exhibits the
immense disparity between the perspective of the colonizer and that of the colonized. As a result, the common erasure of the latter’s history by the former becomes painfully evident and remedied.

**Topics in Change Making: Promoting Equal Education, Food as a Human Right, Reincorporating Excluded Populations, and Spiritually-based Grassroots Community Action** (panel)
Pendleton Hall West 212

Sarina Bajwa ’11, Peace and Justice Studies, Hannah Z. Catzen ’11, Peace and Justice Studies and Music; Annick-Marie S. Jordan ’11, Peace and Justice Studies, Vivian Secaida ’11, Political Science and Peace and Justice Studies
Advisor: Victor Kazanjian, Peace and Justice Studies

Using the analytical framework of peace studies which allows issues and social injustices to be seen through a comprehensive and multifaceted lens, each of us did projects that studied specific conflicts and analyzed them through this peace lens. Our work had the common theme of promoting and understanding human rights, and the difficulty of attaining them because of structural tensions in place that pervade throughout society. By presenting our cases and examples that promote these ideas, we tried to understand the structural systems that maintain certain injustices and explore solutions that would go beyond systems of injustice in the perpetual fight for human rights and equality.

**Selfless Service Overflowing: A Memoir and Analysis of the Peacemaking Functions of Bal Ashram in Varanasi, India**

Hannah Z. Catzen ’11, Peace and Justice Studies and Music
Advisors: Victor Kazanjian, Peace and Justice Studies and Lawrence Rosenwald, English

Living in an ashram teaches you to celebrate little victories as the beginnings of large-scale change—the smile of a three-year-old orphan, the blossom of a plant in a polluted concrete jungle, the laugh of a student after their first day in school. This change may appear to be trite and insignificant in Varanasi, India, where poverty, pollution, and corruption pervade every aspect of society, but it is change at this level that is necessary for sustainable global reform to even begin. Bal Ashram, a spiritual community and a grassroots-based NGO on the banks of the Ganges River, effects change slowly, but effects change truly, on both the individual and community level. My thesis explores both levels of change by alternating between a qualitative, observation-based analysis of the ashram and a memoir of my own experiences living there.

**Using a Peace Lens to Analyze Human Rights and Structural Tensions, Pedagogy of Transformation: The Hope of Creating Structural Liberty in the U.S. and Abroad**

Sarina Bajwa ’11, Peace and Justice Studies
Advisor: Deborah Donahue-Keegan, Education

Social injustice and inequality pervade the world and attempts at reform and development never seem to reach the core of the problem or find a solution. Education has long been considered a means of empowerment and a method to provide equal access, but what happens when education is in fact perpetuating inequality? The issue of education inequity in the United States and abroad provides an insight into the perseverance of structural violence in the sociopolitical arena. The practices of education today often create an access gap that hinders society from reaching a more equitable and democratic reality. Through the narratives of children in the U.S. and across the world, the detrimental effects of structural violence in education are realized. In turn, a hope for a movement towards peace education and the establishment of structural liberty can be realized.

**The Human Right to Food: Possibilities and Prospects in the Modern Capitalist System**

Vivian Secaida ’11, Political Science and Peace and Justice Studies
Advisor: Thomas Cushman, Sociology

The first step to understanding the access to food as a human right is by analyzing the documents from which this imperative originated. The Food and Agriculture Organization of the United Nations has published a methodological toolbox on how societies should try to secure adequate food for all because it is a basic human right. The idea of a human right is not only a moral imperative, but also a legal obligation. My thesis focuses on the idea of food entitlements and the rights-based approach to development, which are new phenomena of modernity. I first evaluate the history of these concepts before understanding why developing countries need to conform to this doctrine.

**Socially Excluded Populations in Argentina and Chile: What Historical and Contemporary Factors (Social/Economic/Political) Have Led to Their Exclusion and What Are Immediate and Long-term Strategies to Incorporate Them?**

Annick-Marie S. Jordan ’11, Peace and Justice Studies
Advisor: Victor Kazanjian, Peace and Justice Studies

What is social exclusion? Who are socially excluded, and what is their experience characterized by? What historical systems and institutions have led to their exclusion, and what contemporary systems have sustained this exclusion? The nonprofit sector and the educational system are seen as traditional solutions to the problem of social exclusion; however, both are ineffective and problematic. The fragmentation of the nonprofit sector, as well as the inability of the educational system to change the social realities of the population fail to elicit real change in the lives of the socially excluded. How can new intervention strategies be developed and what are some immediate and long-term solutions to the conflict?

**Differences in Language Use: Insights from Sociolinguistic Survey Data** (panel)
Pendleton Hall West 116

Gay and Straight Students’ Perceptions of Sexuality and Racial/Ethnic Terms
Laura Dulude ’13, Cognitive and Linguistic Sciences
Advisor: Andrea Levitt, French

Although the members of the majority in a culture sometimes try to impose offensive words to describe members of a minority, members of the minority usually also construct their own descriptors. In a sociolinguistic survey, a group of gay and straight college students rated their acceptability for
use in conversation 30 words that describe race/ethnicity and 30 words that describe sexuality. The results provide insight into the perception of charged and uncharged words that are used to describe people based on their group membership.

How Do You See Color?
Taylor Bass ’13, Cognitive and Linguistic Studies (Linguistics) and Psychology
Advisor: Andrea Levitt, French

Ever wonder about the differences between teal and turquoise, magenta and fuchsia, lavender and lilac? Is there general consensus? Do men and women perceive color differently? Would this difference be reflected in color naming? Do you use names like mauve, chartreuse, and rose, or purple, yellow, and pink? Men and women of varying ages were asked to name a set of 29 colors and then analyzed based on how many different standard and unique names they provided. The findings were in many ways surprising.

The Hidden Role of Emotion in Linguistic Relativity: A Comparative Study on the Effect of Native Language on Visual-emotional Associations
Ran Wei ’13, Cognitive and Linguistic Sciences and German Studies
Advisor: Andrea Levitt, French

Linguistic relativism is the theory that an individual’s perception of the world is influenced by his or her native language. Among linguists, this theory is generally preferred to linguistic determinism, a more radical theory asserting that the native language not only influences but also restrains thoughts. Neither theory, however, speaks directly of emotion, a crucial but often-ignored factor in psycholinguistic research. In this study, I argue that emotion is an area where most differences can occur between two languages, and that a theory of linguistic determinism or relativism would be incomplete without considering it. While preferring linguistic relativism in general, I argue that linguistic determinism must be upheld to some degree when emotion is taken into consideration. To support this claim, a survey was conducted to show that native Chinese speakers and native English speakers have different visual-emotional associations due to language differences.

Age, Use, and the Acceptability of Online or Abbreviated Language
Adriana DelGizzi ’11, Peace and Justice Studies
Advisor: Andrea Levitt, French

Despite the Internet, cell phones, and social networking websites gaining overwhelming popularity since the dawn of the twenty-first century, their effects on language have received mixed reviews. Acronyms like “LOL” and “OMG” can be heard in many different arenas, but are they widely accepted? To answer this question, one can look at age as an important variable in the use and acceptability of this recently formed vocabulary. Significant differences in the use and acceptability of online or abbreviated language are evident through analyses of participant surveys. Younger generations are more inclined to use an abbreviated language than are older generations, yet neither age group is willing to accept this dialect in circumstances other than casual social situations. Throughout this presentation, we will explore how, because of their new “staple” status in much of today’s society, technological advancements affect our language and daily word (or acronym) choice.

The Secret Life of Histone Fragments: Exploring Histone-derived Antimicrobial Peptides (short talks)
Jewett Art Center 450

What’s in a Residue? The Importance of Proline in Antimicrobial Peptide Activity
Kathryn Pavia ’12, Biological Chemistry
Advisor: Donald Elmore, Chemistry

Antimicrobial peptides are short polypeptide sequences that present promising targets for therapeutic developments. While many peptides kill bacteria through generalized membrane disruption, some peptides cross the cell membrane and kill through interaction with intracellular components. Based on properties of some well-studied peptides that cross membranes, the Elmore lab has designed three novel antimicrobial peptides. These peptides have proven active against a range of bacteria, but it is unknown whether their similarities to known peptides mean that they are using the same mechanism of action. One important characteristic in the design of the novel peptides was the inclusion of a helix-breaking proline residue. My research focuses on the importance of this residue on the processes of membrane permeabilization and the ultimate effect of the residue on antimicrobial activity. (Research supported by the Office of the Provost and Dean of the College, Howard Hughes Medical Institute, and the National Institute of Allergy and Infectious Diseases.)

Simulating Antimicrobial Peptides on a Lipid Membrane
Kathy Chen ’11, Chemistry and Computer Science
Advisor: Donald Elmore, Chemistry

Antimicrobial peptides play a fundamental role in our body’s immune response, although their exact mechanisms leave much to be understood. The Elmore lab designed three novel antimicrobial peptides in order to examine what unique properties of these peptides confer them with antimicrobial properties. The group is also studying how these peptides interact with the lipid membrane of bacterial cells. Using the program GROMACS, I have conducted modeling studies of these peptides, obtaining computational results that complement the lab’s experimental work. My talk will address the advantages and limitations of simulating such a system.

Hipposin: Just for the Halibut!
Elizabeth Laufer ’12, Chemistry, and Maria Bustillo ’13, Biological Sciences
Advisor: Donald Elmore, Chemistry

Antimicrobial peptides are a component of the innate immune system in all living organisms, offering the potential for a resistance-free clinical substitution of current antibacterial treatments. Previous work in the Elmore lab focused on a histone-derived antimicrobial peptide buforin II. We are expanding on this research and considering hipposin, a related peptide isolated from the Atlantic halibut Hippoglossus hippoglossus. Hipposin is longer than buforin II, and includes the sequence of buforin flanked by two additional sequences. Because proline is a critical component of the buforin primary sequence, we are working with peptide mutants to determine the importance of
proline residues in hipposin. Our projects begin a dual-approach investigation of hipposin, focusing on its antibacterial and anti-cancer activities. We have observed increased efficacy of proline mutants in tumor cells, with the opposite effect in bacteria. (Research supported by Howard Hughes Medical Institute and the National Institute of Allergy and Infectious Diseases.)

**From Sand to Sky: Using Spectroscopy to See Clearly**

**From Sand to Sky: Using Spectroscopy to See Clearly** (short talks) Science Center 396

**The Ultraviolet Spectrum of the Eclipsing Binary System 22 Vul**

**Laura Ann Stevens ’11, Geosciences**

**Advisor:** Wendy Bauer, Astronomy

We have used data from the Far Ultraviolet Spectroscopic Explorer satellite to study the eclipse of the binary system 22 Vul. The binary system has a cool G-type supergiant with an extended atmosphere and a smaller but hotter B-type main sequence star, which undergoes eclipses. As the hot star goes in and out of eclipse behind the supergiant, its light shines through the cool atmosphere, and the spectrum produced is observed by FUSE. We have identified the different elements producing the absorption lines seen outside total eclipse and observed how the lines change over the different phases of the eclipse. As the hot star gets farther out of eclipse, the absorption features get weaker. The strength of the absorption features produced has been used to study the structure of the cool supergiant wind. (Research supported by the Office of the Provost and Dean of the College.)

**Quantifying the Composition of a Mixed Carbonate-Siliciclastic Sand Matrix: A Comparative Study between XRD, XRF, and Point Counting Methodology**

**Laura Ann Stevens ’11, Geosciences**

**Advisor:** Britt Argow, Geosciences

The composition of beach sands is often used to interpret source and transport of sediment in the coastal zone. A methods study was used to question whether the geochemical analysis methods of X-ray Diffraction (XRD) and X-ray Fluorescence (XRF) can be successfully applied to determine the mineral composition of mixed siliciclastic-carbonate beaches in comparison to the traditional point counting method. Test sands comprised of quartz, coral fragments, shells, amphibole, and magnetite from Vieques, Puerto Rico were used. The range of grain sizes and differential weathering patterns of minerals in the sands complicates analytical methods. Analysis of error in each of the three methods was informed by a calibration study of sands comprised of known quantities of quartz and carbonate. Modifications on the traditional point counting method have produced an improved methodology, which incorporates the strengths of both the chemical and traditional analysis methods while also minimizing overall analytical expenditure.

**Do Muscles Make a Good Swimmer?**

**Linking Fish Form and Fitness**

**Kara Felich ’11, Biological Sciences**

**Advisor:** David Ellerby, Biological Sciences

If speciation were happening at Wellesley, wouldn’t you want to know? Sometimes, a single population may exhibit different body forms in different environments. If these alternate forms are adapted to their specific environments, this may further their divergence and they may someday split into new species. Bluegill sunfish (Lepomis macrochirus) in Lake Waban exhibit such anatomical differentiation, with shallow and open-water fishes having slightly different forms. These two forms also exhibit adaptive differences in swimming performance in their respective habitats. I examined the functional morphology of shallow and open-water bluegill, to determine if specific differences in internal morphology contribute to adaptive performance differences. (Research supported by a Jerome A. Schiff Fellowship, the Office of the Provost and Dean of the College, and the Howard Hughes Medical Institute.)
The Role of Wnt and Dpp Signaling on Postembryonic Leg Development and Lipid Homeostasis in the Flour Beetle Tribolium castaneum

Erica Namigai ’11, Biological Sciences

Advisors: Yuichiro Suzuki, Biological Sciences

Many insects undergo metamorphosis where a larva transforms into a pupa and subsequently an adult. While many insects develop their adult legs from internal tissues called imaginal discs, more basal insects develop their adult appendages from external larval legs. Although the mechanism underlying leg development in highly derived insects is well understood, that governing adult leg transformation in more basal insects is not clear. To investigate the mechanism underlying larval to adult leg transformation in basal insects, leg development in the flour beetle, Tribolium castaneum, was examined through functional studies of the canonical Wnt signaling pathway and the TGF-β family member dpp. Knockdown phenotypes strongly suggested that both Arm and Dpp are key regulators of postembryonic leg development. Unexpectedly, dpp knockdown also resulted in severe bodily clearing, indicating that dpp is also for fat metabolism. (Research supported by the Keck Award from the Office of the Provost and Dean of the College.)

Impact of Habitat Fragmentation on Genetic Structure of Endemic Weevil Populations in the Galápagos Archipelago

Weixia Guo ’11, Biological Sciences

Advisors: Andrea Sequeira, Biological Sciences

Habitat fragmentation, one of the greatest threats to biodiversity, is defined as the division of one continuous habitat into multiple smaller patches. As a result of the barriers to gene flow created by uninhabitable areas between patches, populations of organisms become at risk of losing genetic variability and possible extinction. By using genetic markers to measure genetic variability, we aim to evaluate the impact of habitat fragmentation on the endemic weevil Galapag anus conuayensis on the island of Isabela and compare to those on Santa Cruz and Pinta. The results of this study will yield valuable insight into the impact on other species facing habitat fragmentation. (Research supported by the National Science Foundation and Wellesley College.)

Gnomes, a Nude Male, and an Evil Queen: Exploring the Possibilities and Limitations of Touch-input Devices

(panel discussion) Founders Hall 120

Consuelo Valdés ’11, Media Arts and Sciences, Michael Lintz ’11, Olin Electrical Engineering and Computer Science, Heidi Wang ’12, Media Arts and Sciences, Taili Peng ’13, Computer Science, and Michelle Ferreira ’13, Computer Science

Advisors: Orit Shaer, Computer Science

Our world increasingly relies on technology to convey information, both vital and frivolous, that has become ingrained in daily life. In the Human–Computer Interaction Lab, our research focuses on discovering novel ways for people to interact with digital information. More specifically, we are interested in creating human–computer interfaces that bridge the real, physical world and the intangible, virtual world. Through this work, we hope to provide seamless interfaces between people, digital information, and the physical environment.

In this panel, we will present three projects that illustrate new ways for people to interact with digital information, architectural landscapes, and day-to-day physical objects: G-nome Surfer, a tabletop user interface for collaborative exploration of genomic information that lowers the threshold for bioinformatic tool usage; ArteMuse, a social mobile application that offers an enhanced museum visit; and Morphess, a shape-changing, computationally-enhanced outfit. (Research supported by the National Science Foundation.)

Social Sciences

Phoenix from the Crashes: Life after a National Crisis

(Short talks) Pendleton Hall East 239

Retiree Well-being in a Recession: Measuring Happiness

Lauren S. Baker ’11, Economics and Religion

Advisor: Phillip Levine, Economics

Recessions have many effects on society, but few are as poorly understood as those on workers nearing retirement age. Although popular media portrayals claim that older workers choose to delay retirement in order to recoup lost stock market savings and home equity, research shows that they may not have this choice. The weak labor markets that typically accompany recessions often compel older workers out of the labor force, effectively forcing them to retire. This research examines the effects of weak labor markets on retiree happiness.

Evaluating the “Spare Tire” Hypothesis: The Role of Capital Markets in Reducing Output Losses of Financial Crises

Tes DeLeen ’11, Economics

Advisor: Joseph Joyce, Economics

The financial crisis of 2008–09 has underscored the need to better understand how countries can withstand the repercussions of such events. Among the theories concerned with this issue is the “spare tire” hypothesis proposed by Alan Greenspan, former Chair of the Federal Reserve System. Greenspan claimed that capital markets could act as a “spare tire” in intermediating funds between households and firms in the event of a bank crisis. This research investigates this hypothesis by examining whether countries with active capital markets are better equipped to withstand the negative effects of financial crises as measured by output losses. As a secondary hypothesis, this research also investigates whether the openness of domestic capital markets to foreign investors affects the ability of these markets to reduce output losses.
Greed in the Law: An Examination of Moral Discourse in American Legal Proceedings

Nan McGarry ’11, Sociology
ADVISOR: Thomas Cushman, Sociology

As the stock market began to decline in 2008, a moral discourse condemning greed emerged powerfully in both the public and private domains of American society. Phrases like “Brown blames ‘unchecked greed’” filled headlines as the public demanded a moral accounting of events which would explain the chaos. The rational legal process would also become infused with this cultural discourse. Judges admonished defendants for “pursuing greed for greed’s sake,” while applying harsher sentences for crimes “motivated solely by greed.” How can we understand this phenomenon? In a capitalist society based on a tradition of both acquisition and asceticism we worship acquisition on one hand, while criticizing it on the other. What role does this legal discourse on greed play in helping us to navigate the distinction between “greedy” and “not greedy” acquisition in capitalist societies?

The Effect of Abrupt Political Transitions on the Development of Social Capital: Evidence from the 2009 Honduran Coup d’Etat

Rachel B. Snyderman ’11, Economics and Latin American Studies
ADVISOR: Patrick J. McEwan, Economics

Political violence impacts human, natural, and physical capital in destructive ways. It hinders economic and social development, as well as undermines the security of the individuals, communities, nations, and countries. My research examines how abrupt political events, such as transitions of power and coups, affect social capital in developing countries. To do this, I use data collected from Honduran households from before and after the 2009 Honduran coup d’état. I examine trends in the measures of social trust and participation, and see whether these trends vary by income of families in the sample, land ownership, ethnicity, and region. I examine whether the distance to a capital city or major political center plays a role in changing people’s attitudes on the government or the police, since most political unrest occurred in urban centers. (Research supported by the Office of the Provost and Dean of the College.)

Seed Money: The Economics of Developing Countries (short talks) Pendleton Hall East 139

Care for Money

Weiye Kou ’12, History and Economics
ADVISOR: C. Patterson Giersch, History

What are the origins of public debt and monetized economies? How did states come to pay for major public expenses? How do fiscal mechanisms affect a state’s definition of its political allies and threats? This thesis traces the very early development of modern tools of fiscal management in China’s Northern Song Dynasty (960–1127). Under the pressure of war, the Song state developed a mix of market and non-market approaches to maximize its ability to siphon cash revenue from the trade in major commodities. This remarkable process will be compared to a similar expansion of corporations under the pressure of war financing in early modern Europe over 600 years later. (Research supported by a Jerome A. Schiff Fellowship.)

The Language of International Bioethics in India

Rebecca Winslow ’11, South Asia Studies
ADVISOR: Smitha Radhakrishnan, Sociology

This presentation examines the use of bioethical guidelines in discussions of medical research by Indian civil society. In 2009, an American NGO began conducting a HPV vaccination program in rural India. During the course of this program, six girls died and their parents blamed the vaccine. This controversial case received national media attention in India, jumpstarting a debate on the ability of ethical guidelines to protect India’s poorest and most marginalized citizens from exploitative medical research. Women’s rights and patient advocacy groups accused the NGO of conducting unethical medical research. How did these groups opposing the vaccination program use the language of bioethics to make their case?

Policies for Poverty Alleviation: An Examination of Two National Programs in India and Brazil

Aditi Patel ’11, Political Science
ADVISOR: Lois Waterspring, Political Science

Governments take different approaches to poverty alleviation in every country, influenced by their histories, institutional frameworks, and systems of governance. But is there any one approach that has been the most effective? Does each country have to tailor poverty alleviation schemes to its own specific context? This thesis project compares and contrasts two national-level schemes: Brazil’s Bolsa Familia, a conditional cash transfer program, and India’s National Rural Employment Guarantee Act, a rights-based employment scheme. In comparing them, I aim to analyze why each government took such differing approaches to poverty alleviation, and to examine the extent of the success of each scheme. (Research funded by the Barnette Miller Fund.)

Whose Champions? NGOs and Civil Society in China

Emily Chan ’11, Political Science and Chinese Language and Literature
ADVISOR: William A. Joseph, Political Science

The twin concepts of civil society and NGOs have attracted much scholarly attention in recent years. Literature on these topics has flourished among Western and non-Western academics alike. However, NGO activity in developing countries with undemocratic governments is testing the link between civil society and democracy traditionally espoused by western scholars, leading to a new body of comparative literature that questions traditional assumptions about the role of civil society and democratization. My research seeks to bring China into the debate by examining ongoing NGO activity amidst China’s unique political environment, analyzing the impact of NGOs on civil society development in China, and then using the information to question assumptions surrounding civil society.

Every Breath You Take: Our Complicated Relationship with Air (short talks) Pendleton Hall West 117

Tracing the Flight of Climate Migrants: Predicting Human Migration Patterns under Global Climate Change

Leslye Penticoff ’11, Environmental Studies
ADVISOR: Beth DeSombre, Environmental Studies

An estimated 250 million people will flee their homes by 2050, their survival endangered by the drought, sea level rise, and storm surges caused by global climate change.
change. These climate migrants must forge new lives in unfamiliar cities or even foreign countries because of their vulnerability to this human-caused environmental disaster. Using trends derived from past mass migrations, this presentation will follow the likely path of climate migrants as they depart the most vulnerable hotspots in the developing world, and will offer policy solutions to relieve or prepare predicted destinations. But who will act? The equation measuring responsibility to protect is unequal: those most at risk to migrate live in developing countries like Bangladesh, whereas those with the greatest historical responsibility for climate change live in industrialized countries like the United States. Whatever the answer, there is no question the international community must protect this emergent category of forced migrants.

An Ill Wind: Questions of Indigeneity and Representation in Cape Wind

Danielle Good ’11, Anthropology
Advisor: Adam Van Arsdale, Anthropology

The Cape Wind controversy has been characterized as a battle for the United State’s energy future. The placement of turbines in one of the most idyllic areas in the U.S. carries much symbolic weight, and has elicited debate from local advocacy groups, powerful residents, Native Americans, and business owners. Using ethnographic research, including interviewing residents of the Cape, following media coverage and online discussion of the project, in addition to literature review, I will discuss how concepts of indigeneity to Cape Cod have been affected in the face of Cape Wind, and how the debate has been shaped by corporate and media involvement. My goal is to answer questions of whose voice counts when it comes to environmental management and energy decisions through the Cape Wind case study.

Humanities

I Feel Bad about My Laugh: Life Lessons from Dead Serious

Claire Ayoub ’11, Middle Eastern Studies, Olivia Kingley ’11, English, Simi Oberoi ’11, Political Science and Art History, Lilli Johnson-Moffet ’11, English, Katie Byrnes ’12, Economics, Kat Chen ’12, History and Theatre Studies, Haley Harris ’12, French, Kate Leonard ’12, Cinema and Media Studies, Isabel Custodio ’13, International Relations-Political Science, Marge Dunn ’13, English and Theatre Studies, Grace Lennon ’14, and Erica Dohring ’14
Advisor: Lawrence Rosenwald, English

Ever catch yourself laughing in public? Can’t get those giggles under control? Read our lips: mirth is marvelous! Inspired by famously funny alum Nora Ephron, Dead Serious, Wellesley’s oldest and most prestigious improvisational comedy group, will let you know what it takes to get by in the world through the eyes of improv comedians. In our interactive presentation and performance, we will discuss how the skills developed in improvisational comedy are useful in the academic and professional arenas. Sick of the real world? Just want to be on a boat or have a sassy gay friend? We will also showcase our own new skills in the increasingly popular format of digital shorts. And don’t worry, lovers of unscripted shenanigans—there will be plenty of good old-fashioned improv to go around. Come watch some future YouTube sensations and seize the opportunity to use your playground voices in an academic building.

Italianità in the Home (short performance)

Alexandra M. Karland ’11, Music
Advisor: Claire Fontijn, Music

Giuseppe Verdi is celebrated as a major opera composer, but his collections of chamber songs, much less frequently performed, provide more intimate settings. In these songs, Verdi represents the Risorgimento with music evoking Italy’s history and culture. This presentation will include a performance of several songs, many known as romanze, along with an explanation of their meaning and significance in the context of ottocento Italy.

Girls, Girls, Girls: Nefertari to Gaga

Emma Wright ’11, Art History
Advisor: Meredith S. Martin, Art

Nefertari, chief wife to Ramesess the Great, is often regarded as one of the most beautiful and beloved queens of ancient Egypt. Her unusually large, lavishly decorated tomb in the Valley of the Queens has been called the Sistine Chapel of Ancient Egypt. Throngs of visitors and lack of maintenance during the early twentieth century, however, have led to the tomb’s rapid and disfiguring deterioration. This presentation will discuss the various efforts, successful and unsuccessful, that have been made to restore and maintain Nefertari’s tomb, including the most recent international effort by the Getty Conservation Institute and the Egyptian Antiquities Organization. It will also explore the debates about cultural heritage and patrimony that these conservation efforts engender; the natural and man-made forces that result in the deterioration of art and monuments; and the urgent problems facing Egyptian antiquities at the present moment.

Exotic and Erotic in Nineteenth Century French Photography and English Poetry

Hannah A. Keck ’11, Art History and English
 Advisors: Alison Hickey, English, and Meredith S. Martin, Art

It has been said that “a picture is worth a thousand words” and “every word was once a poem.” What, then, is professed when both French photographers and English poets portray exotic female subjects and incorporate encounters with “otherness” in their work? This is the case in the nineteenth century: an era of industry, commerce, and colonialism. While nineteenth century France and Britain frequently defined themselves in opposition with the other, the “other” proved to be the subject, similarly fascinating for both countries and their artists. The power of such a subject, its suggestions, and its allure are topics addressed in this presentation. By examining representations of the exotic in a French stereoscopic daguerreotype and in select English poems, I hope to distinguish a
comparable means of evoking the mysterious, reviving the fantastic, colonizing the “Orient,” and perpetuating sexual desires.

Lady Gaga: Beyond the “Poker Face”
Sarah Gray ’12, Peace and Justice Studies
Advisor: Maurizio Viano, Cinema and Media Studies

You’ve heard her on the radio, danced to her hits in the club, and marveled at her outrageous outfits, but is there more to this pop icon than latex, red meat, and infectious beats? What lies beyond the poker face? Through the medium of music video, Lady Gaga contributes her own aesthetically intricate social commentary, exploring issues ranging from capitalism to the sex slave trade, from gender norms to religious persecution, and from class systems to sexual liberation. Could this celebrity actually be bringing the society labeled “freaks like her” into the limelight of today’s mainstream music industry through her socially conscious and dissident music videos? Or is she simply a freakier perpetuation of the mainstream? Using film and music analysis, I hope to delve into the mystery that is Lady Gaga, offering some critical insight into her thought-provoking art and persona.

Divine and Contemporary Art: The Miracle and the Mustache
(short talks) Pendleton Hall West 212
Depicting Divinity: God’s Will or the Artist’s?
Cati Schwiosow ’11, Art History
Advisor: Meredith S. Martin, Art

For centuries, Western churches have been hiring artists to decorate sacred houses of worship with biblical images and Christian iconography. However, from the Renaissance to the modern era there have been dramatic changes in the formal and stylistic practices used by artists to illustrate religious themes. The growing prevalence of abstract art in church ornamentation impels examination of two possible causal factors: a relaxation in the specificity of patron-artist contracts over time, and the Church’s changing attitude regarding the acceptance of avant-garde art. This presentation will address historical shifts in church decoration by comparing Italian Renaissance works such as Domenico Ghirlandaio’s Adoration of the Magi (1488) with Henri Matisse’s designs for the Chapelle du Rosaire in Vence, France (1949–1951). Letters, signed contracts, sketches and statements of doctrine from each time period will provide further evidence for analyzing this shift.

The Stache of the Century: The Art of Salvador Dalí’s Mustache
Rachel Spaulding ’11, Art History and Cinema and Media Studies
Advisor: Meredith S. Martin, Art

Many men throughout history have been characterized by their facial hair, though perhaps none as audaciously as Salvador Dalí. A self-described genius, Dalí used the iconic power of his mustache to craft an exterior identity that intrigued, confounded, and inspired his adoring public. His self-professed personality became a work of art and a promotional tool that simultaneously explained and mystified the secret behind his paintings. In 1954, he published Dalí’s Mustache, a photographic “interview” featuring farcical images of his facial hair that responded to questions about his life and philosophy. Marking the complete conflation of his persona and his mustache, the book cemented Dalí’s iconic status in the eyes of the American public. While Dalí’s celebrity places him in dialogue with other famous artists, notably Gustave Courbet and Andy Warhol, he is set apart by his strategic self-promotion and its continued effect on criticism of his work.

Burj Al Arab: Monument, Icon, and Façade
Sarah Shaer ’11, Studio Art
Advisor: Daniela Rivera, Art

Dubai, a small city on the coast of the Arabian Gulf, has become a global sensation. Thirty-eight years ago, the city was known for its rich fishing industry and vast deserts, but today is home to man-made islands and some of the world’s tallest buildings.

Burj Al Arab (Tower of the Arabs), an icon of the city, was one of Sheikh Mohammed bin Rashid Al Maktoum’s first ambitious endeavors. The built environment of Dubai, especially the Burj Al Arab has had a significant impact on the identity of the city both globally and at home. As it straddles the line between Western structure and Arab culture, the building has become a metaphor for the city and its struggle to achieve modernity and global recognition while still maintaining an Arab character, legitimizing its short modern history, and creating an identity for itself. (Research supported by the Office of the Provost and Dean of the College.)

Institutional Development of Contemporary Art in Hong Kong, 1997–2009
Ashley Lee ’11, Art History
Advisor: Heping Liu, Art

The Hong Kong contemporary art scene has gained increasing prominence in light of the 1997 handover, the recent remarkable market success of Chinese contemporary art, and the upcoming construction of a two-billion-USD contemporary art museum. My senior thesis investigates the physical and political spaces of Hong Kong contemporary art, including the operation and negotiation between government-funded and independent arts organizations, between these organizations and individual artists, and between national apparatuses like Hong Kong Museum of Art and international venues such as the Venice Biennale. Institutions are essential to artists because they provide them with exhibition and studio space, an expensive commodity in the super-dense Hong Kong. By accepting government funding and space contributions, artists face the challenge of compromising their creative freedom. Independent organizations must find ingenious ways to survive. On the global stage, Hong Kong contemporary art is quickly gaining followers for its innovation and creativity at both the institutional and individual levels and for its rapid construction of new art spaces.

Theater of the Emotions: Proust to Pinter
(short talks) Pendleton Hall West 116
Proust’s Cathedral: In Search of Lost Time as the Transubstantiation of Life into Literature
Olivia Brown ’12, Philosophy
Advisor: Nicolas de Warren, Philosophy

Why write literature? This question poses a central and complex problem for Marcel Proust in his novel In Search of Lost Time. I attempt to unlock Proust’s answer to this question by examining how one of his novels’
A Voice of Reason and Intimacy: The Female Confidante in the Tragedies of Jean Racine

Melody Pao ’11, French
Advisor: Hélène Bilis, French

Though scholars have often overlooked the confidante in the tragedies of Jean Racine, my senior thesis sheds light on this character’s essential role within four of the playwright’s canonical works. As the voice of reason, the confidante counters the heroine’s passion and completes the defining paradox of Racine’s works—order within chaos. As a figure of intimacy, the confidante gives voice to the heroine’s suffering and moves the audience to tears, thereby marking the tragedy’s success. I will analyze the confidantes who fulfill this dual role and those who deviate from the norm. To underscore her importance, I will also compare her to the male confidant, who, in contrast, stands as a one-dimensional voice of the public sphere. This nuanced portrait of the confidante will reveal her crucial role within the structure of the Racinian tragedy, and offer a new understanding of so-called minor characters on the tragic stage.

Daniel’s Decision: The Ethics of Virtue and Utilitarianism in George Eliot’s Daniel Deronda

Flannery Wheeler ’11, English
Advisor: Lisa Rodensky, English

The conclusion of Daniel Deronda has long puzzled George Eliot scholars. I think, however, it constitutes an attempt to answer the novel’s central moral question: whether, if possible, one ought to “urge wider changes for good” (Middlemarch 365) if doing so would harm one’s “nearest neighbor” (M 693)—whether, that is, one should subscribe to a utilitarian or a virtue-centered moral philosophy. Although the novel ostensibly supports Daniel’s decision, a more Feuerbachian reading of the text complicates this conclusion and suggests, for Eliot, our duties toward individuals ultimately eclipse our duties toward a more abstract humanity at large.

Living in Absurdity

Olivia Kingley ’11, English
Advisor: Lawrence Rosenwald, English

In 1958, the playwright Harold Pinter wrote that his piece The Birthday Party “is a comedy because the whole state of affairs is absurd and inglorious. It is, however, as you know, a very serious piece of work.” Pinter, like his ideological peers Eugène Ionesco and Samuel Beckett, pioneered a new kind of drama and a new kind of humor. Though many would describe plays like Beckett’s Waiting for Godot to be bleak or inaccessible, in fact these playwrights draw upon a long tradition of slapstick, silent film, and verbal comedy, providing comic relief that enriches the implicit philosophical content of their works. The humor of the avant-garde “theater of the absurd,” as it is sometimes called, stands apart from its predecessors, maintaining its startling, provocative impact on audiences to this day.

Science and Technology

From Birth to Perception: The Life of a Neuron (short talks)
Founders Hall 120

Where Is My Mind? Searching for the Neural Correlates of Perception and Attention

Linnea Herzog ’12, Neuroscience, Jo Treitman ’11, Neuroscience, and Kia Salehi ’11, Neuroscience
Advisor: Mike Wiest, Neuroscience

Local field potentials (LFPs), or the postsynaptic electrical activity of groups of neurons in a particular region of brain tissue, can quantify neural activity of that area in response to a stimulus. It has been determined that rats exhibit certain characteristic “bumps” in their LFPs while listening to a pattern of beeps known as the passive oddball paradigm, where a repeating tone is periodically replaced by a different pitch “oddball” beep. In our study, the oddball beep was found to elicit greater amplitude LFP responses in the rat frontal and parietal cortices, even in controls that reversed the pitches of the two tones. These results indicate that the heightened response to infrequent stimuli was attentional and not pitch-related. Future work will investigate whether neural synchrony, which has been linked to attention in primates, occurs in these frontal and parietal responses. (Research supported by the Howard Hughes Medical Institute.)

Nitric Oxide Immunoreactivity and Adult Neurogenesis in Procambarus clarkii

Natalie H. Matthews ’11, Neuroscience
Advisor: Barbara S. Belia, Neuroscience

My research investigates the effect of nitric oxide (NO) on adult neurogenesis, the lifelong production of new neurons. While NO is involved in brain pathologies, it is also involved in normal physiological functions, for example in the production of cyclic guanosine monophosphate (cGMP), invoking a wide array of cellular responses. My experiments show that NOS (nitric oxide synthase, an enzyme that contributes to the production of NO) immunoreactivity in the crayfish species Procambarus clarkii increases with bilateral ablation of the antennules. Increased levels of NO are associated with significantly decreased levels of neurogenesis in the crayfish brain. Using immunocytochemical and confocal imaging techniques to map changes in the brain, the aim of my research is to test a potential push-pull mechanism on adult neurogenesis in P. clarkii between NO and serotonin, a neurotransmitter which can up-regulate neuronal proliferation. (Research supported by a grant from the National Science Foundation.)

Does Ablation of Blood-generating Tissue Alter the Production of Adult-born Neurons?

Rachel Kery ’12 Neuroscience and Anthropology, and Julia Gall ’12, Neuroscience
Advisor: Barbara S. Belia, Neuroscience

Adult neurogenesis, the production of new neurons in adult brains, occurs in olfactory pathways of decapod crustaceans.
In Procambarus clarkii, new neurons are born in the neurogenic niche, where neural progenitor cells divide symmetrically and both daughter cells migrate along glial strands to clusters 9 and 10. Divisions of existing niche cells do not replenish the niche, but the niche increases in size over an animal’s lifetime. Niche precursor cells must, therefore, originate from an outside source. It has been hypothesized that circulating stem cells of possible hematopoietic origin are migrating into the niche from the hemolymph, and previous lines of inquiry have suggested a relationship between cells circulating in the blood and niche cells in the brain. In an attempt to better define this relationship, we examined the effect of hematopoietic tissue removal on neurogenesis. The numbers of cells in cluster 10 were significantly reduced (p=0.0002) relative to control and sham treatment groups. The differences in numbers of cells in the niche, though not significant, still suggest a possible relationship, which we will pursue in future. (Research supported by a grant from the National Science Foundation.)

My Body, Myself (short talks) Pendleton Hall East 139

Does This Relationship Make Me Feel Fat? Interactive Relations among Personality, Relationship Status and Body Image

Lindsey Hildebrand ’11, Psychology

Advisor: Sally Theran, Psychology

Disordered attitudes towards eating and body image present serious risks to the physical and psychological health of young women in our society. Thus, an awareness of situational and personality factors that may predict which individuals are at greatest risk is an important goal of clinical psychological research. This study investigated how personality traits relating to orientation towards creating and maintaining relationships with others interact with relationship status to predict young women’s perceptions of their bodies and attitudes towards eating. The data indicated that those in a romantic relationship reported higher body esteem regarding sexual attractiveness and weight concerns but not physical condition. For women in relationships, an inverse correlation was found between level of dependency and esteem for sexual attractiveness that was not present in single women. However, being in a relationship moderated a positive correlation between desire to please others and disordered eating attitudes.

Cultural Body Ideals and Acculturative Stress: A Study of Body Image and Psychological Outcomes among Latina and Brazilian Girls

Katherine Tierney ’11, Psychology and Women’s and Gender Studies

Advisor: Nancy Genero, Psychology

Research on body image disturbances among ethnic girls indicates that they may be at high risk for disordered eating and depressive symptoms. Sociocultural theories about body image disturbances, including the impact of acculturative stress, have been helpful in understanding body image issues among Latina girls. This study investigated the relationship between body esteem and acculturative stress in predicting eating and depressive symptoms among N=92 Latina and Brazilian girls. Body esteem as well as global self-esteem was examined in the context of acculturation mode (e.g., integration versus assimilation) and bicultural conflict. Correlations supported the predicted bivariate linear relationships and suggest that mode of acculturation may be an important moderating factor.

Health Behaviors, Dispositional Optimism, and Exercise Self-efficacy at Wellesley College

Roxxane Solis ’11, Psychology

Advisor: Julie K. Norem, Psychology

Why do some people make more positive health choices than other people? Why do some people prioritize consistent exercise more highly than others? Could certain personality traits affect people’s health behaviors? Questions like these target the intriguing relationship between personality psychology and health. Using data gathered from the Wellesley College community, this study explored the relationship among dispositional optimism, exercise self-efficacy, and health behaviors. Results suggest that different aspects of personality are related to actual exercise behavior vs. beliefs about exercise. Students also hold different beliefs about their own exercise self-efficacy relative to others. Discussion focuses on the implications of these and other results for student health and intervention efforts.

Independent or Interdependent? The Influence of Self-construal on Self-presentation

Tayir Mahmoud ’11, Psychology

Advisor: Julie K. Norem, Psychology

Have you ever thought about how to perfectly phrase your Facebook status? Had to behave professionally for an interview? Tried to act a certain way to impress a new friend? These are examples of self-presentation tactics, the set of behaviors used in day-to-day interactions to manage impression formation in interpersonal relations. This study examines the relationship between self-presentation tactics and self-construal. Self-construal (SC) is the set of thoughts and actions that define the relationship between self and society. To varying degrees we all exhibit both independent SC and interdependent SC. Those with more independent SC tend to have a stronger sense of individuality and emphasize unique intrinsic attributes, whereas those with a more interdependent SC tend to be more flexible and emphasize social belonging. Having a better understanding of how these two constructs are related can enhance our understanding of their influence on our daily interpersonal interactions.

From Structures to Stress: Biochemistry Seniors Talk about Their Theses (panel discussion) Pendleton Hall West 117

Biochemistry is a diverse field that seeks to understand the molecular basis of biological systems. A molecular approach to biology is important in fields like drug development, and can be useful in understanding cellular signaling and processing. In this panel, three seniors majoring in biochemistry will discuss the research they have done for their senior theses, which includes work ranging from cellular responses to stress to an analysis of molecules that affect cell wall structure.

The Activity and Mechanism of Action of Three Novel Antimicrobial Peptides

Sara Spinella ’11, Biological Chemistry

Advisor: Donald Elmore, Chemistry

Antimicrobial peptides (AMPs) are polycationic molecules with selective bactericidal and/or anti-cancer activity, and play an important role in the immune system of many species. Our lab has designed three
When Cells Get Stressed: Characterizing the Interaction between Poly (ADP-ribose) and RNA-binding Proteins in the Stress Granule

Stephanie See ‘11, Biological Chemistry
Advisors: Paul Chang Biology (Massachusetts Institute of Technology), and Donald Elmore, Chemistry

Poly (ADP-ribose) (pADPr) is a post-translational modification implicated in virtually all cellular processes however its specific function in many biological pathways is still unknown. Our lab has recently shown poly ADP-ribosylation is involved in the stress response pathway, specifically in the nucleation and formation of cytoplasmic bodies called stress granules (SGs). SGs are stalled cytoplasmic translational complexes critical for stress response. SG machinery includes a number of proteins containing RNA recognition motifs (RRMs) that are largely responsible for binding mRNA transcripts during SG nucleation during periods of cell stress. Due to the structural similarities between pADPr polymer and single stranded RNA, we believe these RRMs bind may pADPr as well. By characterizing this binding interaction and describing a mechanism, we aim to better understand the role pADPr plays in stress granule formation. This binding interaction may implicate pADPr as RRMs targets not only in the SG, but also in a wide variety of other cellular pathways. (Research supported by the Rita Allen Foundation, The Koch Institute for Integrative Cancer Research at MIT, Howard Hughes Medical Institute, and Wellesley College.)

Environmental Policy: National and Global Perspectives (panel discussion)

Jewett Art Center 450

In order to understand how to make environmental policy, we need to understand how and why various actors react when faced with environmental issues. This panel considers three separate research papers that ask about the determinants of environmental behavior. Why do some states in the US make good use of federal funds for weatherizing homes, while others do not? When are authorities (local or national) likely to be ineffective at keeping lead out of drinking water? Under what conditions are states likely to invest in high-speed rail? These papers all evaluate the role of socioeconomic and political factors in determining environmental outcomes.

Weatherizing America’s Homes: Is Federal Aid Going Where It Is Most Needed?

Liz Flanagan ’11, Environmental Studies
Advisor: Samuel Barkin, Environmental Studies

This study investigates variation in participation in the Federal Weatherization Assistance Program among low-income households across the nation and explores explanations for why this variance occurs. The question of whether those households most in need are receiving the necessary funding becomes especially important when the environmental, health and economic benefits of home weatherization are taken into consideration. The study concludes that the climate, economy, and political leaning of states all contribute to explaining the variance.

Lead Levels in Drinking Water across the Globe

Danielle Gaglioti ’11, Environmental Studies
Advisor: Samuel Barkin, Environmental Studies

How do lead levels vary among different countries, and why? This study looks at explanatory variables such as government, environmental and economic policies, industry, poverty, research methods, trading patterns, and economic wealth in attempt to answer this question. Countries included in the study were Uganda, the United States, Australia, Peru, Thailand, and the United Kingdom. The countries that are currently experiencing an industrial boom and relies the most on exports were most likely to have lead levels that were above the total allowable concentration.

It’s a Bird, It’s a Plane, No, It’s a High Speed Train: Determinants of National Investment in High-speed Rail

Ana Thayer ‘12, Environmental Studies and Economics
Advisor: Samuel Barkin, Environmental Studies

As countries try to find ways to combat urban sprawl, a growing population and pollution, high speed trains have the potential to be a practical, alternate method of transportation. First introduced in 1964, high speed trains have only recently expanded to countries throughout the world. Many countries are proposing extensive plans to increase the

novel AMPs (DesHDAPs 1-3) based on characteristics known to confer potency to buforin II, a α-helical AMP that kills bacteria by translocating across cell membranes and binding to DNA. The goal of this study is to determine the antimicrobial potency, anticancer activity, bacterial selectivity, and translocation ability of DesHDAPs 1-3 and to relate these properties to the peptides’ structural features. Like buforin II, DesHDAP1 shows activity against several bacterial strains, and its ability to cross lipid membranes is dependent on the presence of a key helix-breaking proline residue. In contrast, DesHDAPs 2-3 do not show significant translocation across lipid membranes and display more limited bactericidal activity. This research offers insight into design strategies for novel antibiotics. (Research supported by the Howard Hughes Medical Institute, the National Institute of Allergy and Infectious Diseases, the Beck Senior Fellowship Program, and Wellesley College.)

Elucidating the Connections between Cytoplasmic Mitotic Cyclins and Cell Wall Integrity in Saccharomyces cerevisiae

Kaylyn Williamson ’11, Biological Chemistry
Advisor: Jennifer Hood-DeGrenier, Biological Sciences

The four partially redundant Saccharomyces cerevisiae mitotic cyclins, Cbl1-4, mediate the transition between the G2 and M phases of the cell cycle by activating their cyclin-dependent kinase (CDK) binding partner. Cbl1-4 concentrate in the nucleus but are also present at lower levels in the cytoplasm. When the cytoplasmic population is eliminated, cell wall integrity is compromised. To understand the molecular basis of this phenotype, our laboratory performed a phosphoproteome screen that identified putative targets of cytoplasmic mitotic CDK activity. In this study, we aim to validate the results of this large-scale experiment. Specifically, this study focuses on confirming that Bni4, a protein important for cell wall synthesis, is a mitotic CDK phosphorylation target. We also aim to identify Bni4 binding partners in the presence and absence of cytoplasmic mitotic CDK activity to better understand the proposed connections between the cell cycle and cell wall integrity. (Research supported by the Roberta Dey and Karl A. Staley Fellowship for Cancer Research at Wellesley College.)
amount of track within the next 10 years. With all of the hype surrounding high speed trains, are some countries better suited for high speed trains than others? What similarities do countries have that have implemented high speed trains successfully in the past? Do economic, governmental, population and land configuration matter? This study explores which countries have successfully implemented high speed rail, which countries are planning high speed rail, and the commonalities and differences between them.

Social Sciences

**Hazardous to Your Health: The Limits of Medicine**

*(short talks)* Science Center 278

**The AIDS Challenge: Examining Health Policy Choice in Africa**

Yaffa Fredrick ’11, Political Science and Cinema and Media Studies

*Advisor:* Robert Paarlberg, Political Science

Approximately 25 million HIV-positive people live in sub-Saharan Africa. National governments in the region have responded both with prevention efforts and with treatment initiatives, but why have some favored one response over the other? Prevention made dramatic progress in curtailing the epidemic in Uganda, yet this approach was not favored in either Botswana or South Africa. What determines health policy choice in addressing the HIV/AIDS epidemic in African states? More specifically, how do governments decide which public health policies to implement in order to tackle the challenges posed by the epidemic? African leaders decide based on an interaction of several factors—economic, political, personal, and sociocultural. In some cases these factors have favored prevention, in other cases treatment, and in still other cases no significant policy response at all. (Research supported by a Jerome A. Schiff Fellowship and the Barnette Miller Fund.)

**Religion, Society, and the Limits of Medicine**

Jiwon Helen Shin ’11, Health and Society

*Advisor:* Jonathan B. Imber, Sociology

In recent decades, public expectations about the medical profession have contributed to physician complaints about stress, exhaustion, and burnout. In this paper, I first examine the literature of physician-writers who present what they experience and perceive as the limits to medicine and the limitations of their obligations as medical professionals. How are their concerns and frustrations framed by social and historical changes? Some scholars have alluded that the secularization of society may be in part responsible for present frustrations within medicine. What is the relevance of spirituality and religion for understanding these limits and limitations, particularly from a Judeo-Christian perspective? I address these questions by an examination of a variety of writings by physicians, religiously committed writers, and scholars of the history, anthropology, and sociology of medicine.

**The Impact of Increased Access to Antiretroviral Therapy (ART) on Childhood Education and Nutrition in Zambia**

Margaret Chidothe ’11, Economics

*Advisor:* Adrienne Lucas, Economics

More than 1 in every 7 adults in Zambia is living with HIV and life expectancy at birth has fallen to 39 years. The country stood as a pioneer in June 2004 when the government committed to the free provision ARTs for the adult public. Prior to this, ARTs were only available privately. While the provision of life-saving ART treatment has emerged as a central part of the medical and policy response to HIV/AIDS, little is empirically known about the welfare effects of this important intervention on children living with HIV-positive adults. Estimation of the intergenerational effects of ARTs can provide valuable insights into the return on international aid investments, resulting in better informed public resource allocation decisions. My analysis explores how household behavior changes in response to increased access to ARTs if there is an infected adult in the household, measured in terms of children’s education and nutrition. (Research supported by the Office of the Provost and Dean of the College.)

**From Television to Your Medicine Cabinet: The Impact of Direct-to-Consumer Advertising of Prescription Drugs**

Emily Scofield ’11, Economics and French

*Advisor:* Robin McKnight, Economics

Ads for prescription drugs seem to be everywhere, but the consequences of these ads are still unclear. Is direct-to-consumer advertising just informing consumers about treatments that they may not know are available? Or is it creating a culture whereby powerful medicines become ordinary consumption goods? The United States is only one of two countries in the world that allows prescription drug companies to advertise to consumers. This research analyzes the impact of this advertising. Does direct-to-consumer advertising cause people to consume more prescription drugs? How does it affect the amount spent on these drugs? Does advertising differentially impact certain groups of people? I also look at who ultimately pays for any increased consumption—is it the government, the consumers, or insurance companies? I address these and other questions using the implementation of Medicare Part D as a natural experiment.

**You Have Been Served: Comparing Justice in Different Legal Systems**

*(short talks)* Pendleton Hall East 339

**Levinas, Dussel, and the Possibility of the Ethical State**

Jamie Cumby ’11, Philosophy

*Advisor:* Nicolas de Warren, Philosophy

What is a truly ethical state? Whereas the traditional answer to this question involves constructing the “right” instrumentality, fostering a just society from universal principles, I attempt to explore the possibility of an alternative account based on the ethical theory of Emmanuel Levinas. Challenging the idea that justice can be summed up in terms of freedom or equality, Levinas’s philosophy reasserts the importance of responsibility, and the ethical imperative to not just cooperate with others politically, but also to serve. To aid my discussion, I draw on the political philosophy of Enrique Dussel, who sees a similar potential in Levinas’s thinking. The anarchic nature of his theory attempts to translate the magnitude of an ethical command to serve, such that
his brand of justice is not accomplished by any one political system, but is constantly perfected. Dussel’s interpretation of Levinas opens a new way of talking about the ethical state not just as fair, but as responsible.

**Behavioral Responses to Unilateral Divorce Laws**

Susan Goldman ’11, Economics  
Advisor: Courtney Coile, Economics

During the 1970s, many states liberalized their divorce laws, causing divorce rates to soar. As divorce became more common, women may have changed their behavior to improve their options outside the marriage so that they could support themselves if they ended up divorced. In my study, I explore whether women changed their education and fertility decisions, making use of differential timing in the liberalization of divorce laws across the 50 United States. I use data from the 1990 Census as well as Vital Statistics data on birth and marriage in my analysis.

**A Slice of Knowledge: A Sampling of Schiff Fellows in the Social Sciences (short talks) Science Center 396**

**Battle Against Internet Piracy in France—Does “Hadopi” Affect Sales in the Media Industry?**

Siwen Chen ’11, Economics  
Advisor: Brett Danaher, Economics

Many media firms have stated that Internet “piracy” reduced their profits significantly in recent years. These firms lobby powerfully for increased government intervention in protecting intellectual property against piracy. The newly implemented and highly controversial “three strikes” law (Hadopi) in France attempts to protect the intellectual property and profits of these companies by removing Internet access from detected pirates. My research project aims to discover whether this law actually affects sales of media companies. Governments across the world are struggling to find ways to protect intellectual property on the Internet so that media content providers can recoup investments in their creative works—indeed, governments are investing a great deal of time and resources in these anti-piracy efforts. This research allows us to investigate whether a particularly strict and controversial government law—Hadopi—actually has its intended effect and whether the benefits outweigh the potential negative effects on society resulting from constrained information exchange.

**Children’s Understanding of the Link between Sensory Perception and Knowledge**

Ellyn Schmidt ’11, Psychology  
Advisor: Jennie Pyers, Psychology

Over the preschool years children come to understand the relationship between their senses and the knowledge those senses acquire. This development may be supported by sensory experiences or theory-of-mind development. We tested these alternatives by asking hearing and deaf children to identify which of two confederates knew the identity of a toy animal when confederates had differential perceptual access to the animal. In the “seeing” condition, only one confederate saw the animal, and in the “hearing” condition, only one confederate heard it. Hearing preschoolers performed equally well in both conditions. However, deaf preschoolers performed equally poorly in both conditions, but deaf kindergarteners succeeded in both. Thus, deaf children’s greater experience with vision does not lead to an accelerated understanding of the seeing-knowing connection. Taken together, the data suggest that understanding the link between perception and knowledge is more closely related to theory-of-mind development than to experiential learning. (Research supported by the Psychology Department and a Jerome A. Schiff Fellowship.)

**Through Adolescent Eyes: An Audiovisual Study on the Illness Experiences of Adolescents with Sickle Cell**

Claire Shea ’11, Anthropology and Spanish  
Advisor: Anastasia Karakasidou, Anthropology

Whereas disease is defined by its symptoms and treatments, my research indicates how the illness experience and its narratives affect these symptoms and treatments. By watching participant-made video diaries, I studied the illness experiences of adolescents living with sickle cell anemia, a blood disorder that most commonly affects blacks and Hispanics in the U.S. The video data I analyzed was collected by Video Intervention/Prevention Assessment, a research project at Children’s Hospital Boston. Seven adolescents with sickle cell used camcorders to create about 150 hours of video diaries of their everyday challenges, successes, thoughts and activities in the environments in which they live. The illness experiences of adolescents with sickle cell are personally unique, yet can also reflect common experiences. Furthermore, the use of audiovisual narratives (video diaries) can provide rich, qualitative data by allowing participants to be honest and reveal experiences they may have otherwise kept to themselves. (Research supported by a Jerome A. Schiff Fellowship.)

**The Panic of 1907: The Impact of Trust Company Directorship on Firm Performance**

Lily Zhou ’11, Economics  
Advisor: Eric Hilt, Economics

The Panic of 1907 was a major financial crisis, with striking parallels to the crisis of 2008. As with the recent financial meltdown, the period preceding the 1907 panic saw rapid innovation and change within the financial system. A new type of bank, called a trust company, became an increasingly important financial intermediary. These firms accepted deposits and competed with commercial banks, and yet were not subject to the same regulatory scrutiny. Many of these trust companies became important lenders to industrial companies and railroads, and would place one or more of their directors on the boards of their client firms. The outbreak of the Panic of 1907 occurred following a series of scandalous revelations about the investments of some trusts, resulting in widespread runs on many of these firms. The connections between the trust companies that came under severe strain during the crisis, and their client firms, may have transmitted the financial crisis to nonfinancial companies. Using newly collected data, this thesis investigates whether corporations with close ties to trust companies were differentially affected during the panic. (Research supported by the Jerome A. Schiff Fellowship.)
Humans

Writing the Travel Essay: The Traveler and the Destination (panel discussion)
Pendleton Hall East 139
Alexis Black ’13, English, Elizabeth Hubertz ’11, Political Science, Sarika Narula ’11, English, and Rebecca Winslow ’11, South Asian Studies
Advisor: Marilyn Sides, English

Have you ever read an article that transported you to a tropical island or a Parisian street? Or an essay that made you want to ride the Trans-Siberian Railroad? Travel writing is an ever-expanding creative genre. What is the definition of “travel writing”? What part of a travel experience is worth exploring—the personal experience or the place? Our panel, drawing from their own experiences at home and abroad, will read from their travel essays, exhibiting the variety of voices that they used to describe their experiences and explaining the editorial suggestions that helped them shape the finished piece.

The Great Globe Itself: A Year of Theatre at Wellesley College (long performance)
Ruth Nagel Jones Theatre
Members of the Wellesley College Theatre Community, Directors, and Performers
Advisor: Nora Hussey, Theatre Studies

What has become a Ruhlman tradition, the theatre studies department, Shakespeare Society, and Upstage come together to present selected scenes from each of the theatre productions of the 2010–2011 season. Theatre at Wellesley brings the liberal arts approach to the performing arts, bringing together new approaches to classics of Shakespeare and Austen (in a world premiere adaptation) with taking on the work of the British and American masters of our time, including Shaffer, Pinter, Hwang, and LaBute. We are also proud to present work created from within the Wellesley community, including the Wellesley premiere of an acclaimed play by faculty Melinda Lopez as well as an original one-act play by a student. Through active student and faculty collaboration, Wellesley College Theatre seeks to explore all aspects of the human condition through the power of the stage.

Scholars as Singing Actors: The MUS 240 Opera Workshop Ensemble in Performance (long performance)
Jewett Auditorium
Mariani M. Bekauri ’13, Physics, Mary E. French ’14, Sarah A. Halbert ’14, Marina Heinrich ’12, Music, Alexandra M. Kurland ’11, Music, Marranda B. Major ’13, May-Elise C. Martinson ’12, Music, and Elizabeth A. Yazgi ’13
Advisors: Andrea Matthews, Music, and Jenny Tang, Music

Over the semester the members of the spring 2011 MUS 240 Opera Workshop have been exploring the many skills required of a singing actor, who must be able to combine words, music, movement, historical research, and emotional sensitivity to bring dramatic truth to the stage. As an application of what they’ve learned, the ensemble will present a program of scenes from The Marriage of Figaro (Mozart), The Merry Wives of Windsor (Nicolai), Amelia Goes to the Ball (Menotti), and Macbeth (Verdi).

Music and Dance— Performance and Analysis (short talks and short performance)
Pendleton Hall West 220
Voice of the Unseen: Code-Switching in Jewish Israeli and Palestinian/Arab Israeli Rap Music
Chayna Lehrman ’11, Cognitive and Linguistic Sciences and Middle Eastern Studies
Advisor: Angela Carpenter, Cognitive and Linguistic Sciences

Rap music is a tool of political expression for marginalized or oppressed communities. Its popularity especially thrives in areas embroiled in conflict, such as Israel and the Palestinian Territories. Jewish Israeli and Palestinian/Arab Israeli rappers choose words over weapons, redefining their views and themselves onstage and in the studio. Interestingly, members of both groups insert the language of the Other into their lyrics to add heightened political meaning to their message and expand (or limit) their audience. This device is called linguistic code-switching. In a multimedia presentation, I will show and explain patterns of code-switching in Jewish Israeli and Palestinian/Arab Israeli rap, focusing on artists such as Tamer Nafar and DAM, Arapeyat, Subliminal and the Shadow, Hadag Nachash, and others. I will also discuss how their code-switching acts are expressions of self-identification, political statements, and defining of the Other.

Hora: A Program for Computer-aided Choreography
Rebecca Graber ’11, Computer Science
Advisor: Scott Anderson, Computer Science

Choreography is a difficult and time-consuming art. For most, it requires specialized knowledge and, often, other dancers to help them visualize. To ease this burden, it seems reasonable to substitute virtual dancers who can perform specified choreography in the same way as their human counterparts. To investigate this idea, I created “Hora,” a program for computer-aided choreography of Israeli folk dances. Hora speaks the language of dance and choreography. It allows amateur choreographers to create, edit, and view new dances in real time. Hora also eliminates the need for obscure dance notation or a group of willing performers to archive and transmit the dance to potential audiences or dancers. This program leverages the power of software engineering and computer graphics to encourage greater participation in the rich and fulfilling world of choreography.

Synergy: Jazz and Rock for...Strings?
Dan Grieneisen ’11 (Olin College), Victoria Boyd ’12, Chemistry, Gena Hong ’12, Women’s and Gender Studies, Elizabeth Lawler ’12, Chemistry, Alison Lee ’12, Biological Sciences, Laura Stearns ’12, Neuroscience, and Julia Cohen ’14
Advisor: Paula Zeitlin, Music

Though brass, drums and electric instruments are traditionally associated with jazz and rock music, there is a growing appreciation for acoustic string instruments in these genres. Structured as a classical string ensemble with violins, violas, cellos and a bass, Synergy is a group with a versatile repertoire including all types of jazz, rock and blues. We invite you to explore the exciting fusion of jazz and string instruments as we play familiar and new pieces!
Chocolate, Conflict, and Identity in Spain and Mexico (short talks) Science Center 278

Sinfully Delicious: Chocolate in Mexican Religion and Society
Madeline Weeks ’11, Spanish and Economics Advisor: Evelina Guzauskyte, Spanish
Chocolate, a beloved sweet of the world, has stood center stage in power struggles and the conquest of the Americas, yet has also served to unite people and strengthen cultural identities. My research examines the shifting role of chocolate in Mexican society and religion, from pre-Hispanic to the present. In ancient Mesoamerica, chocolate—sustenance for the body and soul—was an important religious offering, source of wealth, and determinant of social status. This “drink of the gods” was linked to blood, lust and the human life cycle. During the sixteenth century Spanish conquest of Mexico, chocolate served as a means of cultural exchange between the indigenous and European worlds. As the popularity of chocolate grew, so did debates surrounding the ecclesiastical and medical virtues (and vices) of chocolate. Though social codes and mystical beliefs surrounding chocolate gradually disseminated, chocolate remains important in Mexican identity and culture today. (Research supported by the Office of the Provost and Dean of College.)

The Way to Santiago: A Journey into the Themes of the Films of Orson Welles
Heather Lee ’11, Cinema and Media Studies and French Advisor: Maria San Filippo, Cinema and Media Studies
Orson Welles took Hollywood by storm when he first arrived by way of the New York public theatre and radio circuit in 1939. Welles’s uncompleted Mexican Melodrama, a known but not well-documented screenplay loosely based on British author Arthur Calder-Marshall’s novel The Way to Santiago, is an unproduced script that Welles was working on around the time of Citizen Kane. Though Mexican Melodrama never came to fruition, it reflects what seem to be Welles’s lifelong personal and political preoccupations. How does this early script fit into the “boy-genius’s” career? To what degree does it echo the themes that would ultimately permeate Welles’s body of work? Through close readings of Mexican Melodrama, of Welles’s other uncompleted projects, as well as his produced films and published biographies, I journey into the themes of his films and deepen our understanding of the ever-present anti-fascist sentiment that permeates his body of work.

Space, Conflict and Identity: Writing/Reading Barcelona
Jami-Lin Williams ’11, Spanish and English Advisor: Carlos Ramos, Spanish
How can a writer express social conflict and discontent under the censorship of a powerful dictator? What is the relationship between the internal changes and conflicts of literary characters and their physical environment? These questions form the foundation of my thesis project, which explores the complex function of space in four novels of the Spanish postwar period set in Barcelona. I examine the “spatialization” of the process of identity formation in these texts and the way in which conflict is embedded in the literary configuration of the city. These novels, too, are crucial to the identity formation of the city itself following the devastation of the Spanish Civil War and to establishing its place in the literary imagination of the twentieth century. (Research supported by a Jerome A. Schiff Fellowship.)

Immigration and Xenophobia as Seen through Contemporary Spanish Film
Margaret Van Clee ’11, Spanish and History Advisor: Carlos Vega, Spanish, and Elena Gascón-Vera, Spanish
My thesis focuses on many ways in which foreigners and immigrants are represented in contemporary Spanish film. Economic hardships have propelled many people from around the world to seek better lives in Europe, which has transformed Spain from a country of emigration into a country of immigration. This change has brought out feelings of suspicion and pronounced xenophobia throughout the nation. Through current Spanish films, I have studied this complex relationship within a broader political and economic context. (Research supported by the Office of the Provost and Dean of the College.)

Lucia Nhamo ’11, Studio Art Advisor: Salem Meluria, Art, David Teng Olsen, Art, and Daniela Rivera, Art
The year 1999 marked the beginning of the crisis in Zimbabwe, a ten-year period of socioeconomic decline and political turmoil that was chiefly set into motion by the unlawful seizures of commercially-owned farmland. The decade was characterized by political oppression, state-perpetrated human rights offences and an economic meltdown. This installation is an audio-visual meditation on this period: it juxtaposes state rhetoric with personal stories of experience and survival in Zimbabwe, where the government waged one of the most sustained propaganda campaigns in postcolonial Africa. (Research supported by a Jerome A. Schiff Fellowship.)

The Uncanny Tudor: Where Do You Call Home? (exhibition) Jewett Art Gallery
Ali Crank ’11, Architecture Advisor: Daniela Rivera, Art
Colonization generates feelings of homesickness and longing for the comforts of familiarity. Once displaced, we attempt to fill this void by transforming our vision of home to a tangible form. Often, we embody this idealization in the architectural style of the homeland vernacular. In Western history, British colonists built Tudor houses in exotic settlements, recreating their romanticized home in strange lands. The Tudor style retreats to the fantastical past; its architectural dialogue speaks of British familial, historical, and cultural roots. This art installation addresses the notion of home embodied in the Tudor architectural style of a portable model. The model can be transported and projected onto foreign landscapes as an expression of our desire to find familiarity within alien environments. Anamorphic perspective, dematerialization, and distortion of the structures themselves through the conventions of transparency, reflections, projections, and shadows silently acknowledge that this is not reality, but an uncanny illusion of home. (Materials and research supported by the Office of the Provost and Dean of the College and the Joan and Herbert Schilder Student Research and Travel Fund.)
Outside In: Searching for Empathy through Painting (exhibition) Jewett Art Gallery
Angela Huang ’11, Art Studio
advisor: Daniela Rivera, Art
We pass the same people every day—in class, in the bathroom, in the dining hall—but we don’t always approach them and begin a conversation. Even when we want to make that connection, something stops us: the fear of being nosy or awkward or even too friendly. This art project came from a desire to connect with people, without the barrier of introductions. I interviewed Wellesley students and asked them to join me in painting a quick portrait of themselves, I then borrowed a meaningful object to paint in detail. The flatness and boundaries of a painted surface are limiting, thus I can only retain a small part of that object for myself. Similarly, portraits can be nosy or awkward or even too friendly. This art project came from a desire to connect with people, without the barrier of introductions. I interviewed Wellesley students and asked them to join me in painting a quick portrait of themselves, I then borrowed a meaningful object to paint in detail. The flatness and boundaries of a painted surface are limiting, thus I can only retain a small part of that object for myself. Similarly, portraits can never fully capture an individual, and empathy is not as attainable as we would like it to be. (Research supported by the art department and Office of the Provost and Dean of the College.)

Science and Technology

Understanding Cell Communication (poster session) Science Center Focus
Altered Gene Expression in the Heart of Hypoxia-acclimated Goldfish
Emma Chung ’12, Biological Sciences, Judy DeWitt ’12, Neuroscience, and Tanya Yajnik ’11, Biological Sciences
advisor: John S. Cameron, Biological Sciences
Goldfish (Carassius auratus) have a unique ability to adapt to low oxygen conditions. In this experiment, we isolated cardiac tissue and explored the molecular mechanisms underlying acclimation to hypoxia. Using quantitative PCR (qPCR) and gel electrophoresis, we compared gene expression for hypoxia-inducible factor (HIF1α), nitric oxide synthase (NOS), and SUR2 in acclimated and non-acclimated goldfish. We found significant upregulation of HIF1α and NOS, but no significant change in SUR2 expression. Because HIF1α and NOS are regulatory factors involved in the activation of ATP-sensitive potassium (K\textsubscript{ATP}) channels, significant upregulation suggests increased K\textsubscript{ATP} channel activity. Because SUR2 codes for a structural subunit of K\textsubscript{ATP} channels, no significant change suggests that K\textsubscript{ATP} channel density is not affected. (Research supported by an HHMI Award to Wellesley College and by a Brachman Hoffman Fellowship.)

Transcranial Direct Current Stimulation (tDCS) and Its Implications for Amusia and Aphasia Patients
Sang-Hee Min ’11, Neuroscience
advisors: Jenny O. Johnson, Music, and Barbara S. Belz, Neuroscience
Transcranial direct current stimulation (tDCS) is a painless, noninvasive brain stimulation technique that affects perception, cognition, and motor control by modulating regional brain activity. We investigated neuromodulatory effects of tDCS by recording brain potentials in healthy volunteers before and after tDCS while they performed a pitch/timbre discrimination task. ERP recordings were combined with 20-minute sessions of cathodal/anodal tDCS. We found that cathodal tDCS disrupts the process of auditory attention as applied to pitch and timbre discrimination, suggesting that it affects how we pay attention to sounds. This may have implications for designing neurorehabilitation therapies of amusia/aphasia patients.

Peptidases and Reproductive Hormones: The Effects of Estradiol on TOP and PEP in the Brain
Jana Qiao ’11, Biochemistry
advisor: Adele J. Wolfson, Chemistry
Estradiol is an ovarian steroid hormone essential to reproductive function and requisite to various biological processes. Its release is regulated by an endocrine pathway initiated by gonadotropin-releasing hormone (GnRH), which is broken down by neuropeptidases thimet oligopeptidase (TOP) and prolyl endopeptidase (PEP). We hypothesized that estradiol levels may correlate with or directly alter TOP and PEP, thereby explaining a role by which it regulates GnRH activity. In this study, fluorimetric activity assays were used to analyze how estradiol alters TOP and PEP enzymatic activity in several mouse brain regions involved in reproductive function. Immunohistochemical assays were also conducted to ascertain localization of TOP, PEP, and estradiol receptor alpha in order to observe how all three components influence each other in their expression and activity. (Research supported by grants from Howard Hughes Medical Institute and NSF-REU.)

Effects of the Peptide-degrading Enzyme Thimet Oligopeptidase on Testicular Development and Testosterone Production
Tania Dhawan ’11, Biological Sciences
advisor: Adele J. Wolfson, Chemistry
Thimet oligopeptidase (TOP) is a peptide-degrading enzyme that occurs throughout the body, but its highest concentration is in the testes and brain. TOP has been shown to break down an important neuropeptide called gonadotropin-releasing hormone (GnRH) in the brain. GnRH regulates steroid hormone production in gonads via the hypothalamic-pituitary-gonadal axis. The current study was designed to determine whether TOP also has a local effect on the gonads of male mice. Male mice were injected subcutaneously with a TOP-specific inhibitor (JA-2) and compared to control animals that had not been treated. Animals were sacrificed at six weeks of age and samples of their blood, testes, and brain were collected. There was a trend towards higher circulating testosterone levels in the JA-2 treated mice. Furthermore, testes samples from JA-2 treated animals displayed greater TOP activity compared with the control. These results suggest that TOP acts peripherally to control gonadal function in males.

From Small to Significant: Creating and Using Chemical Reactions (poster session) Science Center Focus
Ultrahigh Vacuum Studies of Electron-Induced Reactions of Methanol
Kristal K. Chamberlain ’12, Chemistry, Lisa M. Jacob ’12, Chemistry, and Chan Myae Myae Soe ’12, Chemistry
advisors: Christopher Arumainayagam, Chemistry, and Michael Bayer, Chemistry
Radiation chemistry, the study of the interactions of high-energy radiation with matter, has extensive applications and implications in areas such as cancer treatment, waste management, astrochemistry, nuclear chemistry and the material sciences. The interaction of high-energy radiation with matter results in copious quantities of secondary low-energy electrons, which form distinct energetic species that are thought to promote a variety of radiation-induced chemical reactions. The majority of these secondary electrons have energies below 10 eV and react with matter.
through three mechanisms: (1) dissociative electron attachment (DEA), (2) electron impact excitation, and (3) electron impact ionization. Our goal is to examine the hypothesis that DEA is the primary dissociation mechanism for high-energy radiolysis in the condensed phase. We are studying the dynamics of low-energy electron-induced reactions in multilayer nanoscale thin films of methanol under ultrahigh vacuum conditions. Investigation of two new possible radiolysis products, methyl formate (CH$_3$OCHO) and glycolaldehyde (HOCH$_2$CHO) are also underway. (Research supported by the National Science Foundation, the Brachman Hoffman Fund, and Wellesley College.)

**Design, Synthesis, and Evaluation of Novel Isoprenyl Coumarin Derivatives as Potential Antiviral and Anticancer Agents**

Tehsina Devji ’11, Chemistry

Advisor: Dora Carrico-Moniz, Chemistry

Isoprenyl coumarins have been shown to exhibit potency as both anticancer and anti-inflammatory agents. Most recently, compounds of this class have also shown to be efficacious as antiviral agents against H1N1, which causes Influenza A. While isoprenyl coumarins are ubiquitous in nature, their chemical nuances can be explored in order to conduct structure-activity relationship (SAR) studies. To that end, our investigation has involved the design, synthesis and evaluation of a series of novel isoprenylated coumarin derivatives as potential antiviral and anticancer agents. Here we present the synthesis of a novel family of isoprenylated coumarin analogues with modifications targeted towards both the isoprenyl chain structure and the umbelliferone moiety. Based on SAR data, more extensive synthetic modifications to these synthesized analogues are slated for future studies.

**Synthesis of a Key Precursor towards the Total Synthesis of the Promising Anti-cancer Natural Product, Spiroxin A**

Alice Kwan ’11, Chemistry

Advisor: Dora Carrico-Moniz, Chemistry

Spiroxin A, a natural compound isolated from a marine fungus, has shown promising cytotoxicity against ovarian cancer cells. Ovarian cancer is a serious disease that affects about one in 57 women in the US each year and is the most common cause of death from gynecological cancer. I will present the synthesis of a key chiral precursor en route to the synthesis of this promising anti-cancer agent. The new route will be applied towards the enantioselective total synthesis of spiroxin A and other structural analogues important for future structure-activity relationship (SAR) studies. (Research supported by the American Chemical Society Petroleum Research Fund and the Staley Summer Awards for Cancer-related Research.)

**Architecture, Structure, and Evolution (poster session)**

Science Center Focus

**An Examination of the Photoprotective Mechanisms and Gas Exchange Characteristics Utilized by a Variety of Plants**

Caroline Kwon ’11, Biological Sciences, Mia Howard ’12, Biological Sciences, and Katherine Connolly ’12, Biological Sciences

Advisor: Martina König, Biological Sciences

Chloroplast movement and nonphotochemical quenching (NPQ) via the pigment zeaxanthin are two mechanisms plants employ to optimize photosynthetic performance under changing light intensities. In order to determine the relative importance of both mechanisms in mitigating the degree of photoinhibition we quantified their roles in a wide array of plant species. Cytochalasin B (an actin-depolymerizing agent) and dithiothreitol (a violaxanthin de-epoxidase inhibitor) were used to inhibit chloroplast movement and prevent zeaxanthin synthesis, respectively. We then determined the extent of photoinhibition in the absence of these photoprotective mechanisms under high light stress conditions. Since internal CO$_2$ concentrations are the other important factor in determining photosynthetic behavior, we investigated the relationship between stomatal density and chloroplast movement using confocal microscopy. Leave were fixed with glutaraldehyde to preserve chloroplast positioning and stained with propidium iodide, which allowed the visualization of the stomata. (Research supported by the Howard Hughes Medical Institute and Wellesley College.)

**Architecture of Photosynthetic Biofilm Growth in Flow Cells**

Michelle Xu ’12, Biological Sciences, Zihan Dong ’13, Biological Chemistry, and Sandra Lam ’11, Bioengineering (Olin College)

Advisors: Mary M. Allen, Biological Sciences, Rebecca Christiastun, Applied Physics (Olin College), and Jean Huang, Biology (Olin College)

The purpose of this research is to study biofilm structures in the photosynthetic bacteria Synechocystis sp. Strain PCC 6803 and Rhodopseudomonas palustris. Biofilms are groups of bacteria that aggregate and form a community where they excrete extrapoly saccharides that serve as a protective barrier between them and their environment. The formation of biofilms varies in differing conditions and the structure of the mature biofilms is indicative of their growth environments. A flow cell system was constructed to test various experimental variables, including flow rate, inoculum concentration and absence or presence of light. This system allows for the supply of media to a growing biofilm under controlled conditions. Internal structures within the biofilms were observed by confocal microscopy. Results from our research showed the classic “mushroom” structures as well as the presence of “cavities.” Unexpected architecture was also seen, giving insight into the multiple variations in biofilm growth.

**Investigating Budding Yeast Bni4 as a Putative Target of Cytoplasmic CDK Activity**

Nikki Rossetti ’12, Neuroscience, and Kyomi Igarashi ’12, Biochemistry

Advisor: Jennifer Hood-DeGrenier, Biological Sciences

Using a phosphoproteomic screen, we identified a threonine residue within a cyclin-dependent kinase (CDK) consensus motif in the S. cerevisiae protein Bni4 as a phosphorylation site that exhibited diminished
Understanding Relationships across Time (poster session)
Science Center Focus

Emotional Processing Deficits and Eating Attitudes in College Women
Sarah Siegel ’11, Psychology
Advisor: Sally Theran, Psychology

Previous psychology research has shown that individuals with eating disorders are less able to express the emotions they feel, or identify the emotions of others. These emotional processing deficits are similar to a cognitive-affective deficit called alexithymia. Numerous studies have shown the correlation between emotional processing deficits and clinical eating disorders, yet there is a lack of research on subclinical eating disordered populations in relation to these deficits. The goal of this research was to study clinical and subclinical participants with high endorsement of negative eating attitudes. We hypothesized that individuals with high endorsement would be more likely to display cognitive-affective deficits similar to those of alexithymia, and perform poorly on a perceptual emotional recognition task. Results showed that emotional processing deficits did not predict negative eating attitudes in the subclinical group, but that cognitive-affective emotional processing deficits did predict higher negative eating attitudes in the clinical group.

The Relationship between Preschool Children and their Imaginary Companions
Aryanne de Silva ’13, Psychology
Advisor: Tracy R. Gleason, Psychology

Relationships between preschool children and their imaginary companions are complex because of the different types of companions and the many different ways that children relate to them. Based on diary entries made by parents of over 40 children, the child-imaginary companion relationship can be examined both quantitatively and qualitatively. These diaries offer an opportunity to explore the type of play that children engage in with their imaginary companions, and how children interact with them. The relationships can be categorized as being either hierarchical or egalitarian. The type of relationship may be correlated with the type of imaginary companion that the child prefers, or perhaps with the child’s age or gender. How children engage with their imaginary companions day-to-day and the level of autonomy that their imaginary companions derive from the children are also interesting themes that will be explored in the diaries and described.

Medicines are Molecules (panel discussion) Pendleton Hall East 339
Shoshana Bachman ’12, Chemistry, Adina Badea ’11, Chemistry, Erika Buckle ’12, Chemistry, and Brianna MacLeod ’11, Chemistry
Advisor: David R. Haines, Chemistry

Chemists use an understanding of the structures and properties of biological molecules to develop treatments of diseases. We will discuss our work as chemists focusing on diabetes and chlamydia. Diabetes is a highly prevalent disease in the U.S. One project is examining the affinity of GLP-1, a naturally occurring hormone integral to the insulin induction pathway, for its receptor GLP-1R, while another is looking at the structure of GLP-1R through its interactions with a small molecule inhibitor. Chlamydia is a common, recurring sexually-transmitted disease. We are synthesizing a molecule designed to allow patients to develop long-term immunity. Ultimately, the results will help develop better treatments for type 2 diabetes and chlamydia. (Research supported by the Sherman Fairchild Foundation Summer Research Award, Howard Hughes Medical Institute, Brachman Hoffman Fund, a Schiff Fellowship, and the Bloomfield Fellowship.)

Social Sciences

It All Counts: Policy Changes in Schools All Around the World (short talks) Founders Hall 120

English-centric: Influences of Recent European Union Educational Policies on English Instruction in Spain
Anna McCarthy ’11, Spanish
Advisor: Verónica Darer, Spanish

The European Union has taken recent steps to overhaul the university system. The change of educational policies has shed a harsh light on primary and secondary education of some of the member countries, including Spain. Suddenly, there is more focus on English as a Foreign Language (EFL) instruction for stu-
The Effects of School Openings on Students: Evidence from Honduras
Rebecca Cannon ’11, Economics
Advisor: Patrick J. McEwan, Economics
How much do children learn in school? What is the value of a rural education? Economists have dedicated significant resources to investigating these questions. We look to an experimental middle school program in Honduras designed for rural communities for answers. We consider a panel data set on a cohort of students from 54 primary schools intended to feed students into these experimental middle schools. Fourteen of these middle schools did not open due to an enrollment cutoff, providing us with exogenous variation in attendance. We administered an achievement test and survey to the students regardless of their attendance behavior, allowing us to consider the effects of this random variation in enrollment on student achievement and labor supply. Attempts to quantify the value added of these experimental, community-based, rural middle schools are underway. (Research Supported by the Office of the Provost and Dean of the College.)

The Effect of School Sanitation Facilities on School Attendance Rates in India
Catherine Wu ’11, Economics
Advisor: Kartini Shastri, Economics
While human capital serves as an important driver of economic growth, poor school attendance rates present a large obstacle to human capital accumulation in developing countries. The high opportunity cost of going to school and the direct costs of education, whether in terms of textbook and uniform costs or reputation costs for girls because of social and cultural norms, are all potential explanations for poor school attendance rates. However, there is also evidence that poor infrastructure and the lack of sanitation facilities in schools contribute to student absenteeism. This paper exploits the variation in the number of toilets in schools provided by a school infrastructure program in India to examine the impact that sanitation facilities have on student attendance.

The “Waiting Years”: The Christian Stay-at-Home-Daughter Movement
Estelle S. Olson ’11, Peace and Justice Studies
Advisor: Thomas Cushman, Sociology
The Stay-at-Home-Daughter movement is comprised of young conservative Christian women who “for the glory of God” have actively chosen a life of quiet “beautiful womanhood.” This womanhood is acquired during the “waiting years” through lessons in homemaking and child-rearing techniques as well as through the learned “art” of becoming a submissive helpmate. The Stay-at-Home-Daughters exemplify, by way of modeling biblical femininity and a chaste transition from maidenhood to matronhood, the answer to the question: “What ought a girl to do in her single years?”

A Mother’s Work Is Never Done: Attitudes about Mothers across Time and Place (short talks)
Science Center 104
From the Universal to the Cultural: The Construction and Transformation of Motherhood among African American Muslim Communities
Ikhlas Saleem ’11, Religion
Advisor: Sharon Elkins, Religion
This study seeks to explore the impact of Islam in shaping the position and value of motherhood among African American Muslim communities from the advent of the Nation of Islam to present-day orthodox communities. The development and significant acceptance of “motherhood” has resulted in associational attributes such as honor, piety, social necessity and appreciation. While these attributes may be good in themselves, when attached to mothering they come to represent a moral imposition upon women. Motherhood becomes a virtue, rather than a natural occurrence inclusive of its physical challenges and cultural and social burdens. What are the consequences of current interpretations of motherhood and are feminist reinterpretations an appropriate point of analysis through which to revalidate motherhood?

Mothering the Republic: Womanhood and Maternity in Early American Life and Literature
Erica H. McGinnis ’11, History
Advisor: Katherine Grandjean, History
The years following the American Revolution and into the nineteenth century are often seen as a missed opportunity for women. Despite the immense societal and political upheaval, women’s roles remained much the same and they did not have an official political role in the new republic. But women were politically involved in other ways, even helping to forge the ideologies of Republican Motherhood and the Cult of Domesticity that emerged to encapsulate women’s proper roles in the state and society. My research aims to show the role women themselves played in creating these female societal ideals and explores the lived experiences of women in early America to analyze the gap between experience and the ideal. (Funding for this project provided by a Schwartz grant.)

Pregnancy in the Concentration Camps: A Means of Resisting Dehumanization
Michaela Wilkes Klein ’11, Political Science and French
Advisor: Laura Grattan, Political Science
Although mentioned in countless Holocaust memoirs, the circumstance of a pregnancy in the concentration camps remains largely unexamined. How did these women become pregnant? Did women carry to term? What were the conditions like? Yet, it is clear, despite the incredible risks associated with it, women united over a pregnancy and cared for “camp sisters,” often forsaking their own wellbeing. What motivated this in an environment of extreme dehumanization? How did their social and moral identities play a role in their actions? What is the significance of their seemingly small but essential gestures? Through looking at their identities as women, mothers, Jews, and citizens, one can understand the resonance of a pregnancy as a means of regaining their humanity and resisting Nazi power.
Change Begins at Home: Drawing Knowledge from Our Community (short talks)
Pendleton Hall West 117

Isabella Stewart Gardner and the Paradox of Boston Cosmopolitanism

Isabella Stewart Gardner and the Paradox of Boston Cosmopolitanism

Kit Cali ’13, History
Advisor: Peggy Levitt, Sociology

The glamour of Isabella Stewart Gardner—New Yorker by birth, Boston Brahmin by marriage, Gilded Age society queen, art collector, and world traveler—still glitters in her museum. Nearly unchanged since Gardner’s death in 1924, the museum serves as a sort of time capsule of Gardner's elegant cosmopolitan tastes. What can Gardner's museum tell us about the nature of her cosmopolitanism and that of other elites in late nineteenth century Boston? What did the timeless beauty and serenity of her museum have to do with the tumultuous change that churned around it in the turn-of-the-century city outside its doors? Finally, how do we make sense of the professed cosmopolitanism of Boston's elite alongside their dismay at their city's increasingly diverse demographics?

1:30–2:40pm

Sarah Zaidi ’11, International Relations–History
Advisor: Lidwien Kapteijns, History

Upon seizing power in a coup d’etat in 1977, General Muhammad Zia-ul-Haq promised elections within 90 days. Eleven years later, Pakistanis were still waiting, and Zia’s regime only ended after his death in a mysterious plane crash. The longevity of Zia’s autocratic rule was largely possible due to his Islamization Project in which a series of punitive measures—including fundamentalist legislation towards women—were implemented in the name of religion. The question remains: how did Zia achieve success in his Islamist project? Introducing his policies two years before Khomeini’s return to Iran, Zia initiated his own Islamic revolution of sorts. Vowing to rescue Pakistan by aligning its society with the “injunctions of Islam,” Zia was able to present his actions as “innately” Pakistani and as continuous within the greater schema of Pakistan’s history.
(Research supported by a Henry Schwarz Honors Fellowship.)

Identities and Interactions with Diversity on Campus
Grace Liu ’13, Sociology
Advisor: Lee Cuba, Sociology

What happens when students arrive at college and are met by peers from very different backgrounds? To what extent do institutional programs and policies (e.g., curricular requirements, diversity initiatives) shape the diversity experiences of students? Through a qualitative analysis of interviews collected for the New England Consortium on Assessment and Student Learning (NECASL), I will explore how student experiences with diversity in a new environment relate to the development of their social identities. My presentation will compare student accounts from Wellesley College with those from a co-ed college in New England. (Research supported by a Sophomore Early Research grant from the Office of the Provost and Dean of the College.)

The Possibility of Innovation in Female Same-sex Wedding Ceremonies
Amelia Ayrelan Iuvino ’11, Sociology
Advisor: Markella Rutherford, Sociology

The fight for equal marriage rights has dominated the contemporary gay movement. I aim to address the following questions through qualitative interviews with 15 married female couples in Massachusetts, where same-sex marriage has been legal since 2004. Are female same-sex couples engaging in acts of resistance to produce a new type of wedding and a new model of marriage, or are they essentially reproducing a traditional and heterosexual model? Is the intention to subvert a norm an essential component of acts of resistance, or can non-normative behavior function as resistance without the consciousness of the actor? Is it possible to change an institution while participating in it, or must we dissent from and reject those institutions that we deem problematic in order to achieve more lasting transformations in society? (Research supported by the Office of the Provost and Dean of the College.)

Women’s Historical Memory and Community (panel) Jewett Art Center 450

Remembering WWII in Japan through a Feminist Perspective
Catherine Poon ’11, Women’s and Gender Studies, Elizabeth Pan ’12, Political Science
Advisor: Elena Tajima Creef, Women’s and Gender Studies

What are the ways in which we choose to remember war? Japan remembers WWII and the atomic bomb through three main memorials: Yasukuni Shrine, Hiroshima and Nagasaki Peace Parks. Built with very different purposes, each war memorial constructs the events of WWII as either, an extension of Japanese nationalism for the glorification of the emperor, the victimization of Japan by the atomic bomb, or unemotional but as a lesson for nuclear peace. Whether Japan is portrayed as the victimizer or victim, each memorial positions Japanese men as the protagonists of war, while their women are marginalized in feminine roles, forgotten in history, or disembodied and devoiced. In this compara-
tive study of Japanese WWII memorials, we will explore the ways in which women are exploited as emotional facilitators in the construction of war memorials in Japan.

**Is the Personal Still Political?: Lesbian Separatism Today**

Sarah Parmelee ’11, Women’s and Gender Studies
Advisor: Sea-Ling Cheng, Women’s and Gender Studies

Lesbian separatism emerged as a political ideology during the early 1970s. Most lesbian separatist groups branched off from the women’s liberation movement and created their own political stances to suit their needs that were not being met by women’s liberation groups. Their stance during the 1970s was that by withdrawing their energy and support for men, they would be able to focus on creating a women’s culture and simultaneously dissolve the patriarchy. Current lesbian separatist communities are often thought to be the vestige of a radical past, and they remain rarely heard from or studied. My ethnographic fieldwork within one of the largest remaining lesbian separatist communities revealed the political differences between early and current lesbian separatism. Some of the main political focuses include the importance of women-only spaces, aging, and sustainability. (Research supported by the Office of the Provost and Dean of the College.)

**100 Years of Letters: Questions Women Ask about Birth Control**

Rachel Delano ’11, Women’s and Gender Studies
Advisor: Susan Reverby, Women’s and Gender Studies

I have been examining the kind questions that feminists have raised surrounding the politics of birth control in the 20th century. My research specifically tracks how these debates have shifted across the decades and waves of the women’s movements. Based on my research, I draw conclusions from the last century and apply them to contemporary contraceptive options and sexual health education in our current decade with an eye toward the future.

**Sustainable Sustenance: Greening Wellesley’s Food System (panel) Pendleton Hall West 212**

Sonria Cooper ’11, Environmental Studies, Amanda Faulkner ’11, Environmental Studies, Liz Flanagan ’11, Environmental Studies, Alex French ’11, Environmental Studies and Classical Civilization, Danielle Gagliani ’11, Environmental Studies, Genesieve Goldleaf ’12, Medieval/Renaissance Studies, Cataia Ives ’11, Environmental Studies, Leslie Penticoff ’11, Environmental Studies, Serena Ryan ’11, Environmental Studies, Sarina Sawyer ’11, Environmental Studies and Spanish, Bracha Y. Schindler ’11, Environmental Studies, Casey Sedlack ’11, Environmental Studies, and Ana Thayer ’12, Environmental Studies and Economics
Advisor: Beth DeSombre, Environmental Studies

From the farm to the kitchen to the landfill, food is one of the largest factors influencing Wellesley College’s sustainability profile. This year, the Environmental Decisionmaking class conducted a review of the sustainability of the campus food system. At the request of the Director of Sustainability, the Assistant Vice President for Administration, and representatives from Wellesley’s dining service provider, we have prepared suggestions for reducing the environmental impact of our campus food system. Our report incorporates student input with administrative goals in order to find ways for the entire campus to contribute to and benefit from a sustainable food program. Join us in examining our campus food system, and learn what’s on your plate.

**Humanities**

**Ars Bene Dicendi: Rhetoric in Medieval Music (long performance) Pendleton Hall West 220**

Natasha Roule ’11, Medieval and Renaissance Studies and Music
Advisor: Claire Fontijn, Music

Rhetoric, the art of eloquent persuasion, fascinated medieval Europeans. In the context of both performance and literature, they imbued music with rhetorical meaning, refuting modern scholarship that generally asserts that such meaning did not appear in Western music until the Renaissance. An understanding of the rhetorical potential of a piece offers insight into the music’s purpose and the cultural background of the musician and audience. This presentation will feature a discussion on rhetoric in medieval musical pieces and literature. The sweetness of birdsong in Old French romances, the tragic love of Tristan and Isolde, the mystical chant of Hildegard of Bingen, and the meticulous scholarship of thirteenth century Parisian scholars will shed light on the power of music to move human emotion. My performance on the vielle, harp, and hurdy-gurdy will be joined by bass voice to explore rhetorical music by Hildegard and several troubadours. (Research supported by the Office of the Provost and Dean of the College.)

**Mapping the Margins from Spenser to Nabokov (short talks) Pendleton Hall West 212**

**Mapping the Invisible: Guides, Maps, and the Role of Cosmography in Edmund Spenser’s The Faerie Queene**

Gabrielle Linnell ’13, Medieval and Renaissance Studies
Advisor: Sarah Wall-Randell, English

MapQuest stops working in Fairy Land. In Spenser’s epic poem *The Faerie Queene* (1590/96), the imaginary country of Fairy Land contains moveable kingdoms and an elastic time-space continuum. Many critics believe that Fairy Land is a pure allegorical construct, not to be understood as a physical place, or the haphazard result of poor poetic planning. But what if Spenser had another influence? This project seeks to link Spenser’s work with that of the German cosmographer Sebastian Münster. More than mapmaking,
cosmography sought to create a unified description of the entire world with little regard for accuracy. Munster intertwined historical commentary, detailed cityscapes, animal behavior and agricultural legend to depict geographical and cultural character. In the same way, *The Faerie Queene* serves as a cosmographical guide to the characterized place of Fairy Land. The presentation will also include images from sixteenth century maps and a brief history of sixteenth century cosmography.

**Portraying the “Strolling Trade”: Gypsies and Nomadism in the Eighteenth Century Novel**

*Angelina Del Balzo ’11, English and Italian Studies*

*Advisor: James Noggle, English*

Although Henry VIII attempted to expel them in 1530, gypsies and travelers have been living in England for hundreds of years. Mirroring their official absence but constant presence, gypsies have been both marginal and fascinating figures in English literature, particularly in the eighteenth century novel. This thesis project focuses on gypsies in the works of Daniel Defoe, Henry Fielding, and Jane Austen. Through their portrayals of the gypsies they demonstrate the aesthetic development of the novel occurring during this century, in their approach to characterization, discourse, and genre. Yet, the broader implications of nomadism and itinerancy represented by the gypsies also illuminate the implications of nomadism and itinerancy.

**Looking at Queer Desire in Pale Fire and Death in Venice**

*Farah Ahmed ’11, English*

*Advisor: Lawrence Rosenwald, English*

Thomas Mann stayed in the closet his entire life. He used his work, such as *Death in Venice*, to explore his secret desires. Vladimir Nabokov was a homophobe who hated Mann’s “topical trash.” His novel *Pale Fire* seems, at first, to correlate with his public aversion to homosexuality. Both authors, however, had more complex attitudes toward queer sexuality. These can be uncovered by examining the way they form their narratives. My work looks at how narrative strategy is used to shape the reader’s relationship with queer desire and, in doing so, uncovers the hidden affinities between these two complicated men. (Research supported by the Jerome A. Schiff Fellowship.)

**Science and Technology**

**Small Particles with Big Potential: Gold Nanoparticles in Cancer Research (short talks) Science Center 104**

*Linh Vu ’11, Economics, and Olivia Hulme ’12, Chemistry*

*Advisors: Dora Carrio-Monz, Chemistry, and Nolan T. Flynn, Chemistry*

This project is a collaboration with the Flynn’s nanotechnology laboratory and involves the development of a potential drug delivery system using gold nanoparticles (AuNPs). An assembly of AuNPs can be formed using oxime linkages between AuNPs possessing accessible hydroquinone (H$_2$Q) terminal functional groups and nanoparticle-bound aminoxy groups. Here, we present the progress toward the synthesis of a novel ethyleneglycol-thiolated H$_2$Q target molecule in order to enhance solubility in aqueous media. The hydroquinone terminated oligo(ethyleneglycol) thiolated species will be used to decorate AuNPs and subsequently linked by electrochemical actuation to nanoparticle-bound aminoxy groups.

**Rocks, Roofs, Roots (short talks) Pendleton Hall West 116**

**Studying a Piece of the North American Continent in Yellowstone National Park**

*Kate Philbrick ’11, Geosciences*

*Advisor: David Hawkins, Geosciences*

The North American continent is a mosaic of ancient continents accreted by tectonic collisions over the last four billion years. This project examines evidence for a three-billion-year-old tectonic collision preserved in granite plutons exposed in Yellowstone National Park. The project began last summer in Yellowstone with field observations and collection of rock samples for further study. It continued in the laboratory with microscopic examination of the spatial relationship between minerals in the rock and
measurement of the U-Pb crystallization ages of the mineral zircon. The mineralogical evidence is consistent with the hypothesis that these granite plutons formed by partial melting of metamorphosed sedimentary continental crust during and/or following collision, rather than by partial melting associated with subduction prior to collision. U-Pb dating of zircon crystals is underway to test this hypothesis. (Research supported by a National Science Foundation REU grant awarded to David Mogk, Montana State University.)

Transgenerational Plasticity in *Persicaria lapathifolia*: Lamarckian Ideas within Darwinian Evolution?

Elizabeth Rouen ’11, Biological Sciences

Advisor: Alden Griffith, Biological Sciences

Lamarck theorized that characteristics of species changed due to environmental conditions and that these changed characteristics were passed to offspring. Lamarck’s theory of immediate environmental consequences to traits (“acquired characteristics”) may still offer some insight to transgenerational plant responses to the environment, within the context of Darwinian evolution. For many plants, it can be beneficial to be able to react to the environment as needed. However, some plants are better prepared for life due to the environmental conditions of their mother, and can gain an advantage over seeds that were not prepared for a certain environment. In order to better understand such transgenerational plasticity, and to determine whether or not it is adaptive, we are conducting a two-generational experiment on *Persicaria lapathifolia*, exploring how plant competition affects fitness across generations. (Research Supported by the Frost Endowed Environmental Science/Studies Fund.)

Ecological, Social, and Political Factors Influencing Biodiversity on Green Roofs

Bracha Y. Schindler ’11, Environmental Studies

Advisor: Kristina Jones, Biological Sciences

Green roofs, roofs that are planted with vegetation, are used to reduce the heat island effect and stormwater runoff in cities, but they are also a novel type of ecosystem that can support plants, insects, and birds. My research explored the factors that control biodiversity, particularly of arthropods, on green roofs. Certain ecological factors control green roof biodiversity, but it is also important to consider whether green roof designers have the knowledge to build green roofs that promote biodiversity, and how government regulations of green roofs impact the design and maintenance process. This talk will address the question: Given our knowledge of green roof ecology, from my work and previous research, how can green roof regulations be more biodiversity-friendly? (Research supported by the Frost Endowed Environmental Science/Studies Fund.)

Silent Speech and Fictional Friends, Understanding Signed Language and Imaginary Friends in Hearing-impaired Individuals (short talks) Pendleton Hall East 339

The Relationship between Spatial Mapping and Language in Deaf Children

Sam Grossmith ’11, Cognitive and Linguistic Sciences, Jenny Lu ’12, Neuroscience, and Rachel Magid ’12, Psychology

Advisor: Jennie Pyers, Psychology

Previous research has demonstrated that young children acquiring English are better able to reason about spatial relationships when they are given language that describes the spatial relation. We investigated the relationship between the acquisition of spatial language and the development of spatial relational reasoning in deaf children. American Sign Language (ASL) is distinct from English because of its visual-spatial nature. While English speakers use lexical prepositions such as “in,” “on,” and “under,” ASL signers use iconic depictions of spatial relations more than lexical prepositions to represent the real-world objects in relation to one another. Thus young ASL signers might use spatial language differently to facilitate their understanding of spatial relationships.

Ten deaf children in an ASL-English preschool program completed two spatial mapping tasks that involved an understanding of similarity between two identical setups, a spatial language production task and a spatial language comprehension task. Children’s scores on the cognitive tasks were significantly correlated with the complexity of their spatial language production and with their comprehension of spatial language in ASL. (Research supported by the Sherman Fairchild Summer Research Award, Anabel Boyce James Fund for Summer Research in the Sciences, Radcliffe Institute for Advanced Study, Herchel Smith Harvard Summer Undergraduate Research Fellowship.)

Are Deaf Nicaraguan Signers Borrowing Facial Gestures from Hearing Nicaraguans?

Catherine Jaramillo ’11, Psychology, and Andrea Akemi Takahesu Tabori ’13, Psychology

Advisor: Jennie Pyers, Psychology

Nicaraguan Sign Language (NSL) is a rapidly developing language that has recently incorporated grammatical markers produced on the face. When asking questions the youngest signers frown their brows and lift their chins more than older signers, suggesting that younger signers are introducing these elements into NSL. The current empirical study examines whether these grammatical facial expressions are borrowed from the facial gestures produced by hearing Nicaraguans when asking questions. Twelve adult Nicaraguans with normal hearing and no experience with NSL were videotaped asking a friend a series of questions. We coded for three facial gestures: brow frown, chin lift, and nose wrinkle. We observed the use of all three facial expressions, and documented the use of two more: side head tilt and brow raise. The similarity between the subset of facial expressions produced by both groups, confirms that grammatical markers in NSL are being adapted from some, but not all, of the gestures used by hearing Nicaraguans. (Research supported by Ruhlman Fund in the Social Sciences.)

Imagination: A Comparison of Hearing-impaired and Typically Developing Children

Melissa F. Haley ’11, Psychology and Art History

Advisor: Tracy R. Gleason, Psychology

More than half of children have an imaginary companion at some point before the age of seven. Although hearing-impaired children may be delayed and do not engage in as much pretend play as their typically-hearing peers, little information exists about whether they understand pretense or create imaginary companions. A survey of hearing-impaired adults
provided some information about imaginary companions and fantasy in hearing-impaired children. A set of tasks related to pretend play was administered to children ages two to seven with and without hearing impairments to measure whether children can engage in pretense, follow pretense stipulations, understand the concept of an invisible friend, and then interact with that friend. Hearing-impaired children presented more variation in their interactions than their typically impaired children presented more variation and then interact with that friend. Hearing-impaired children presented more variation in their interactions than their typically impaired children presented more variation.

**Bee Flexible: Adaptation and Genetic Diversity in Fish and Insects** (short talks)  
*Founders Hall 120*

**Waggle Dance Communication and Genetic Diversity of Honey Bees**  
*Emma Britain ’13, Biological Sciences, and Shabeen Ranguwala ’13, Anthropology*  
*Advisor: Heather Mattila, Biological Sciences*

Workers in a honey bee colony are from numerous genetic families because each honey bee queen mates with multiple males. It is known that colonies with multiple sub-families of workers forage more and produce longer “waggle dances” to advertise food sources in the environment; we determined some of the worker-level mechanisms that explain this phenomenon. We compared waggle dancing by foragers and the amount of pheromones that workers release as they dance to the genetic composition of colonies (i.e., whether colonies were genetically diverse or genetically uniform because of the insemination status of queens). Our findings will allow us to determine whether the multiple-mating behavior of honey bee queens improves a colony’s foraging effort because individual workers in a genetically diverse colony produce more signals on a per worker basis than workers in a genetically uniform colony. (Research supported by the Office of the Provost and the Dean of the College, Brachman Hoffman Fund, and the Howard Hughes Medical Institute.)

**Specializations in Diet and Feeding Morphology within a Bluegill Sunfish Population**  
*Michele Vogelzang ’13, Peace and Justice Studies, and Johanna Ascher ’13, Art History*  
*Advisor: David Ellerby, Biological Sciences*

Bluegill sunfish, *Lepomis macrochirus*, which inhabit the littoral and pelagic regions of Lake Waban, show differences in diet selection and feeding morphology dependent on environment. Our studies have found that littoral fish have wider mouths and a wider pharyngeal jaw apparatus compared to pelagic fish. This enables them to feed on larger and more complex prey items including snails (Gastropoda) and flies (Odonata, Diptera). Pelagic fish feed almost exclusively on Daphnia. These results suggest that bluegill ecomorphs are better adapted to feed within their respective habitats. (Research supported by NSF and Wellesley College Sophomore Early Research Grant.)

**Demographic History and Population Structure of a Flightless Weevil Pioneer from the Galápagos Archipelago**  
*Christina Tran ’11, Biological Sciences*  
*Advisor: Andrea Sequeira, Biological Sciences*

Genetic distinctiveness in volcanic island populations evolves due to a balance between dispersal history and vicariance. Similar to Darwin’s finches and the giant Galápagos turtles, the Galápagos flightless weevils provide an example of taxon evolution from a single colonization event, and *Galapagatus williamsi* is the most ancestral colonizer. Employing variable genetic markers (microsatellite loci), we aim to discover how this has aided or deterred the formation of genetically distinct lineages compared to younger arrivals. These results could inform future conservation efforts, since evolutionarily distinct lineages may be more difficult to recover than functional and morphological diversity, and could warrant protection.

**Can You Hear Me Now? Understanding Molecular Messages in Biological Systems** (short talks)  
*Pendleton Hall East 239*

**Dependence of the Timing of Manduca sexta Molts on Dietary Cues**  
*Camille Hamilton ’13, Biology and French Cultural Studies, and Karen Kemirembe ’12, Biology and Spanish*  
*Advisor: Yuichiro Suzuki, Biological Sciences*

The cues leading to an insect’s molt, shedding of skin, remain poorly understood. In *Manduca sexta*, it is known that the steroid hormone ecdysone initiates molting. However, the mechanism underlying its release is not known. To determine the role of nutrition in initiating endocrine changes, fourth instar *Manduca* larvae were fed diets either containing or missing certain macromolecules. Tryptophan, as well as all the other essential amino acids, was found to be necessary for molting. Starved animals were found to overcome inhibitions to molt through ecdysone injections. Rapamycin, an inhibitor of TOR signaling, an amino acid sensor, was found to delay a molt without reducing the growth rate. Investigations of the mechanism by which TOR signaling, amino acids, and ecdysone interact are currently underway. (Research supported by the Brachman Hoffman Grant and Sherman Fairchild Foundation Summer Research Award.)

**Investigating the Biochemical Function of Wolbachia Type IV Effectors**  
*Heidi Park ’12, Biological Sciences, and Jennifer Fishbein ’13, Biological Chemistry*  
*Advisor: Irene Newton, Biological Sciences*

The *Wolbachia* bacteria are obligately intracellular organisms. They form symbiotic relationships with nematodes and arthropods. *Wolbachia* are most infamous for the myriad of reproductive effects they cause in insects, such as male killing and feminization of males. They can also have medical applications; research is ongoing on their capabilities as possible drug targets against diseases caused by filarial nematodes as well as in novel disease vector control applications in insects. We are trying to identify, characterize and localize the biochemical function of *Wolbachia* type IV effectors using yeast as a model host system. Effectors are proteins.
secreted by the bacterium that have an effect on the host cell. Understanding the effect of the proteins can help us learn more about how *Wolbachia* actually function in their natural host.

**Understanding Estrogen Effects of an Androgen Metabolite in Prostate Cancer**

Pui Man Rosalind Lai ’11, Neuroscience

Prostate cancer is the second leading cause of cancer death among American men after skin cancer. The development of prostate cancer is highly dependent on hormones. Androgens increase cell growth in prostate cancer. However, androgens can be broken down into metabolites, one of which is 3b-Adiol. This androgen metabolite binds to estrogen receptors and prevents the growth of prostate cancer cells in culture. Interestingly, estrogens, such as estradiol, also bind to estrogen receptors, but do not elicit the same effect as 3b-Adiol. This study seeks to understand why 3b-Adiol, but not estradiol, has an anti-proliferative effect on prostate cancer cells through using a protein interaction assay to identify different proteins interacting with estrogen receptors when bound to either hormone. Studying proteins involved in this pathway will allow us to identify crucial players in the inhibition of cell proliferation in prostate cancer, and provide insight into the possibility of using 3b-Adiol as a candidate drug for prostate cancer treatment.

**MOER to the ER Story: An Alternative Mechanism for Estrogen Signaling in the Brain**

Christina Sun ’11, Neuroscience

The ovarian steroid hormones, estradiol (E) and progesterone, act in specific brain regions to regulate reproductive behavior and physiology. One function of E is the induction of progesterin receptor (PR) expression in the brain, which is predominantly mediated by Estrogen Receptor-α (ERα). E has more recently been found to also act via membrane ER and trigger rapid cellular events. The potential contribution of this novel mechanism of ER action to the expression of PR in the brain has not been investigated. To understand the role of membrane ER in estrogen signaling *in vivo*, a transgenic mouse expressing membrane only estrogen receptor-α (MOER) was developed by Ellis Levin (Pedram *et al*, 2008). MOER mice express only the ligand binding domain of ERα at the plasma membrane. Using immunofluorescence and confocal microscopy, the present study addresses two questions: 1) Do MOER mice express membrane ER in the brain? and 2) Do MOER mice express E-induced PR in the brain? (Research supported by Jerome A. Schiff Fellowship and the Staley Fund for Cancer-related Research.)

**Masters of Magnetic Resonance Imaging and Spectroscopy**

**Panel Discussion**

Pendleton Hall West 117

**Magnetic Resonance Study of Neurochemistry and Brain Volume of Rett Syndrome in a Mouse Model**

Stephanie Huang ’12, Chemistry

Rett syndrome (RTT), a developmental neurological disorder, is the second leading cause of mental retardation in girls. Girls who have RTT appear to develop normally until 18 months of age when they begin to express symptoms of RTT, such as loss of speech, abnormalities in motor function, and severe respiratory dysfunction. Currently, there is no known cure for RTT. This study uses the noninvasive techniques of Magnetic Resonance Imaging (MRI) and *in vivo* MR spectroscopy (MRS) to conduct longitudinal studies on Mecp2<sup>2<sup>R168X</sup></sup>, a mouse model of RTT. The main objective of this study aims to characterize the neurochemical profile and examine changes in brain structure volume of Mecp2<sup>2<sup>R168X</sup></sup> *in vivo*. If we can understand the neurochemical basis of RTT, we may be able to monitor, identify, and treat RTT patients via their neurochemical pathways. (Research supported by the Howard Hughes Medical Institute.)

**All-in-One Multifunctional Nanovehicle for Cancer Therapy**

Hatice G. Yayla ’11, Chemistry, and Eugenia White ’13, Chemistry and Economics

**Advisors:** Nancy H. Kolodny, Chemistry, Nolan T. Flynn, Chemistry, and Andrew C. Webb, Biological Sciences

Pancreatic cancer is a rare yet highly aggressive malignancy with a five-year survival rate of only 1–4% with no effective therapies. Our goal is to create a multipurpose nanoparticle for targeted delivery of imaging contrast and therapeutic agents for pancreatic cancer. The particle’s inner core consists of iron oxide, which allows us to visually track the particles using magnetic resonance imaging (MRI) as they reach the target tumor. Synthesized particles were characterized using transmission electron microscopy, dynamic light scattering and MRI. The particle’s surface will be decorated with targeting antibodies and therapeutic agents. The therapeutic agent, a boron-10 loaded synthetic peptide, was characterized using ICP-OES and Western blots. Nanoparticle delivery will be tested using tumors grown on the chorioallantoic membrane of chicken eggs. An analogous *in ovo* model using smaller quail eggs has also been developed. (Research supported by Schiff Fellowship and the Sophomore Early Research Program.)

**Tracking Cells from Blood to Brain:**

**Using MRI to Study Neurogenesis in the Crayfish**

Adriane G. Otopadik ’11, Neuroscience, and Yi Ling Dai ’13, Neuroscience

**Advisors:** Nancy H. Kolodny, Chemistry, and Barbara S. Beltz, Neuroscience

Neurogenesis, the birth of new neurons, occurs throughout adult life in organisms ranging from the humble fruit fly to the complex human. In the brain of the crayfish, *Procambarus clarkii*, our lab has identified a neurogenic niche, or cluster of neural precursor cells, that serves as a hub for the development and migration of new neurons. Because all cells in the niche are migrating to their final destination in the brain, it remains a question how the niche is replenished with new precursor cells. Our current hypothesis suggests that hematopoietic stem cells are migrating from the bloodstream to the niche via a vascular cavity. We seek to characterize this cell migration from blood to brain.
noninvasively using superparamagnetic iron oxide particles and magnetic resonance imaging (MRI). (Research funded by the Arnold and Mabel Beckman Foundation Scholars Program, the Staley Summer Award for Cancer-related Research, and Howard Hughes Medical Institute.)

Using Magnetic Resonance Techniques to Examine a Mouse Model of Schizophrenia

Weiya Mu ’11, Chemistry
Advisor: Nancy H. Kolodny, Chemistry

Schizophrenia is a debilitating psychiatric disorder that results in severe cognitive impairment and changes in neuroanatomy in humans. The GCPII+/- mouse model attempts to imitate schizophrenia symptoms by decreasing the levels of glutamate carboxypeptidase (GCPII) in the brain. Decreased GCPII should then lead to decreased glutamate activity, which is thought to be a cause for human schizophrenia. Because magnetic resonance techniques are noninvasive, longitudinal studies are done to study mouse brain development over time. Magnetic resonance imaging (MRI) is used to examine the volumes of whole brain and specific brain regions including the hippocampus and lateral ventricles, regions affected by schizophrenia in humans. Magnetic resonance spectroscopy (MRS) allows quantification of brain metabolites. By comparing mutant and normal control mice, we can assess whether or not the mouse model successfully emulates the changes in the brain that occur with schizophrenia. (Research supported by the Staley Summer Award for Cancer-related Research.)

Social Sciences

The “Real” World? How Perceptions Shape Reality (short talks) Pendleton Hall East 139

Are They Men or Women? Perceptions of Scientists

Laila Alawa ’12, Psychology, and YoonAh Lee ’13, Psychology
Advisor: Linda Carli, Psychology

Gender stereotypes continue to affect judgments about men and women, especially true in male-dominated fields where relatively few women reach high-ranking positions. Why are women so underrepresented in scientific fields? One possibility is that people assume that women lack the traits needed to be successful scientists. To test this, we investigated whether people associate success in the sciences with masculine traits more than feminine traits. We also assessed whether the association of masculine traits with scientific success was greater in some scientific fields than others. Because past research on stereotyping has shown that people tend to see occupations as requiring masculine traits to a greater extent when those occupations have a relatively high proportion of men, we predicted that stereotypes linking success in science to masculine traits would be most pronounced in sciences where there are relatively few women. (Research supported by the Office of the Provost and Dean of the College.)

Can Collective Sentiment Expressed on Twitter Predict Political Elections?

Jessica Chung ’11, Computer Science and Economics
Advisor: Eni Mustafaraj, Computer Science

Twitter is a real-time social networking site where users can share information and personal thoughts about current events. Previous research has suggested that Twitter has been used to mobilize various political groups, and we wanted to study whether the volume and content of tweets can be used to predict an election. My project focuses on the use of sentiment analysis to determine the overall polarity of tweets from the 2010 Massachusetts special Senate election. By comparing positive and negative tweets for each candidate, we can determine the amount of support a candidate receives on Twitter and compare this with traditional predictive polling methods such as Gallup and Pollster. I am also using other machine learning algorithms such as Naive Bayes and clustering in order to improve the accuracy of my results. I hope to apply this methodology to future elections in order to test its true predictive power.

Childhood Bullying in the Twenty-first Century

Jean Lee ’13, Sociology
Advisor: Markella Rutherford, Sociology

Though childhood bullying has long been prevalent in society, bullying in the twenty-first century has a distinct characteristic: institutionalization. Children are now, more than ever, under the constant surveillance of adults in many kinds of institutionalized settings—particularly in educational institutions. In these circumstances, it would seem as though bullying would cease to exist. However, childhood bullying persists, and public attention to bullying has increased dramatically in recent years. Despite ample popular attention, many sociological questions about bullying go unanswered. Is bullying truly a prevalent problem in schools? What kind of school environment allows for this phenomenon? If institutionalized bullying is not a prevailing problem, then what are possible explanations for widespread popular concerns? By examining these questions in a sociological manner, it becomes easier to answer such questions to ultimately understand the nature and social structure of childhood bullying.
Flute Sonatas of J.S. Bach: Music Culling the Baroque Era (long performance) Pendleton Hall West 220
Adriane G. Otupalik ’11, Neuroscience, Claire McRee ’12, History, and Sara Li ’13, English Advisor: Suzanne Stumpf, Music

In this long performance, we will take a journey through musical compositions of Johann Sebastian Bach (1685–1750). J.S. Bach is today considered the most important composer of the Baroque era. His flute sonatas are renowned as outstanding and important works in the repertoire for the instrument. Three of the four sonatas that have been definitively traced to Bach’s authorship will be performed: the Sonata in A Major for flute and obbligato harpsichord, Sonata in E Minor for flute and continuo, and Sonata in E Major for flute and continuo. An investigation of Bach’s cultural and historical inspirations will be presented to provide a platform for understanding each of these pieces and their composer.

The Soul, the Song, and the Screen: Constructing the Black Experience (short talks) Pendleton Hall East 239

The Ethnographer’s Trick: Zora Neale Hurston and the Female Trickster in African American Folklore
Kris Arden ’11, Anthropology Advisor: Adam Van Arsdale, Anthropology

Anthropologists have long collected and studied folklore as an authentic representation of a group’s voice, not only in terms of how that group saw the world, but also how it perceived itself. Zora Neale Hurston based her ethnography on pregnant documented immigrant women

Writing the Self: Identity Construction in Twentieth Century African American Literature
Galen Danskin ’11, English Advisor: Elisabeth Ford, English

In the nineteenth century, most writing produced by the African American community centered on defending the author’s humanity and calling for others to recognize and respect this humanity. With the pivotal publication of Native Son by Richard Wright, focus was abruptly shifted from defending the identity of the African American community to establishing the place, evolution, and stakes of this identity. How can a writer work to reclaim or redefine an identity that has historically been controlled by another group? Is it possible to do this without reinscribing tropes of oppression, domination, or silence? Examining both Richard Wright and James Baldwin, this presentation will explore the ways in which these authors’ reach beyond limitations imposed by white society and attempt to construct a freer and more independent voice for the African American community.

Discrepancies between Black Literature and Their Film Adaptations
Boafoa Offei-Darko ’11, English Advisor: Elisabeth Ford, English

Themes and motifs often change when converting a work of literature into a film. In works by and about black people much is often sacrificed when converting literature into film such as personal narrative, stylistic themes and motifs, and intended audience. When converting black novels into films much more emphasis is placed upon broad and general themes such as sexism and racism taking away from the personal and individual narratives that are presented in the novels. Controversial and complex tropes are often taken out in order to keep the film “audience friendly.” This is proven in my analysis of Alice Walker’s The Color Purple and Walter Mosley’s Devil in a Blue Dress. In contrast when a film is converted into a novel, it leaves more room for expansion of characters, narratives and themes such as in the case of Perry Henzell’s The Harder They Come.

Gendered Peace Lenses: Abortion, Rape, and Reproduction (panel) Pendleton Hall West 212
Josephine Kabambi ’11, Peace and Justice Studies and Biological Chemistry, and Yasmin Kassam ’11, Neuroscience and Peace and Justice Studies Advisor: Cattia Confortini, Peace and Justice Studies

When we assume gendered peace lenses, we begin to see the ways in which different policies and practices are gendered. In this panel discussion, we will assume gendered peace lenses to: discuss abortion access in the United States; common themes present in Western media representations of rape in the Democratic Republic of Congo, and consider the implications of the 1996 Welfare Reform on pregnant documented immigrant women
and their fetuses.

Perception and Representation: A Womanist Analysis of Western News Media Representations of Wartime Rape in the Democratic Republic of Congo

Joséphine Kabambi '11, Peace and Justice Studies, Biological Chemistry
Advisor: Caitia Confortini, Peace and Justice Studies

The occurrence of rape during the Congo wars and its continuance following the signing of peace accords have captured Western media attention as activists and politicians have worked to end the impunity of, and break the silence behind, wartime rape. The news media has played an important role in (re)producing several themes concerning not only rape “victims,” but also the Democratic Republic of Congo (DRC) as a country. Media reinforces many stereotypes and creates dichotomies of "us/them" and "our/their actions and characteristics." It is therefore important to analyze and understand the ways in which the media we consume contains certain racist, sexist, and imperialistic assumptions. In this talk, I will reveal some of prominent themes present in BBC News reporting on wartime rape in the DRC.

Understanding the Impact of 1996 Welfare Reform on Immigrant Access to Prenatal Care

Yasmin Kassam '11, Neuroscience and Peace and Justice Studies
Advisor: Victor Kazanjian, Peace and Justice Studies

On August 22, 1996, President Clinton signed the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA, or “welfare reform”). PRWORA instituted a five-year ban on documented immigrants accessing some federal benefits like Medicaid. For documented, pregnant immigrant women who are unable to pay for prenatal care out of pocket, this five-year ban essentially blocked access to prenatal care. I look at the implications of this ban from various rights discourses (human rights, citizen rights, fetal rights) and social justice perspectives (from Liberation Theology to feminist theorists) to better understand the “justice” implications of this policy for documented and pregnant immigrant women.

Undue and Unnecessary Burden: An Investigation of Abortion Access and the TRAP Effect

Hilary M. Allen '11, Peace and Justice Studies
Advisor: Tom Burke, Political Science

Since the decision of Roe v. Wade, abortion discourse in the United States has been a heated debate between two polarized views. The ruling of Planned Parenthood v. Casey (1991) and the redefinition of “undue burden” made it possible for states to propose and enact more stringent abortion restrictions. Through a Peace and Justice Studies framework, I am investigating abortion access in Mississippi and West Virginia, not through the direct prohibition of abortion, but through indirect legislation that has severely limited access to abortion and other family planning services.

Science and Technology


Visual Discomfort Is Highly Predictive of Attention-Deficit/Hyperactivity Disorder Symptoms in College and Beyond

Victoria Nichols '11, Psychology
Advisor: Jeremy Wilmer, Psychology

Previous research has found that college students with more severe post-reading binocular visual abnormalities reported more symptoms of attention-deficit/hyperactivity disorder (ADHD) (Wilmer and Buchanan, 2009). We theorized that these visual abnormalities may cause ADHD symptoms by inducing visual stress during nearwork. In this study, we measured visual abnormalities with a battery of binocular vision tests both before and after a challenging reading comprehension test. We also assessed self-reported visual stress and a broad range of personality characteristics associated with ADHD. Individuals who reported more visual symptoms on the Convergence Insufficiency Symptom Survey (CISS) reported significantly higher ADHD symptoms on both the ADHD Index of the Nadeau College-level ADHD Questionnaire. We conclude that visual symptoms are highly, and specifically, predictive of ADHD symptoms. This relationship is consistent with our theory that binocular visual abnormality causes ADHD symptoms by inducing visual stress. (Research supported by the Brachman Hoffman Fellowship Award.)

Video-game Training Improves Precision of Smooth Pursuit Eye Movements

Lily Tsai '11, Neuroscience
Advisor: Jeremy Wilmer, Psychology

Large individual differences in the precision of smooth pursuit eye movements (the ability to smoothly track a moving object) raise the question of where these differences come from and whether they can be modified through experience. We examined the effects of video-game training on smooth pursuit precision by training 41 participants in one of three types of video games (sports, action, and strategy) for one hour a day for seven days. Results indicate that training in certain video games can improve smooth pursuit precision, which may be beneficial for people ranging from those with visual deficits to professional athletes. (Research supported by the Office of the Provost and Dean of the College, the Brachman Hoffman Fund and Wellesley College.)

Keep Your eye on the Ball: Watching and Playing Sports linked to Smooth Pursuit Precision

Sarah Koopman '11, Neuroscience
Advisor: Jeremy Wilmer, Psychology

Although smooth pursuit eye movements, used to follow a moving object, were presumably beneficial to those species that evolved them, we know little of their importance in modern society. Given that some people smoothly pursue moving objects more precisely than others, if precise smooth pursuit is important for a task, individuals with more precise pursuit should perform that task better. In order to investigate the potential importance of smooth pursuit, I studied smooth pursuit eye movements in relation to playing sports, in particular Ultimate Frisbee. I found that participants who played sports or watched sports on television had more precise smooth pursuit than those who did.
not. To measure smooth pursuit precision, participants pursued dot targets of various speeds while an eye tracker recorded their eye movements. Participants also answered questions about their experiences in sports and other activities involving vision. (Research supported by the Amabel Boyce James Fund for Summer Research in the Sciences and the Neuroscience Department.)

Cardinal Color Axes in Macaque Monkeys
Cleo Stoughton '11, Neuroscience
Advisor: Bevil Conway, Neuroscience

The mechanisms by which the outputs of the L, M, and S cones are processed by the brain to produce color perception are incompletely known. The macaque has been used as a model for human color vision, but it remains unclear whether it has the same color perception as humans. Krauskopf et al. (1982) found that thresholds to colors along certain color axes were selectively elevated following adaptation to stimuli saturating those particular axes, while thresholds to intermediate colors were not elevated to the same degree following adaptation to saturated intermediate colors. Thus they concluded that there are two cardinal chromatic axes: L-M and S. We sought to investigate whether macaque monkeys have the same cardinal chromatic axes as humans. Sixteen hues were presented at various saturations while the subjects’ ability to detect the hue was measured under various adapting conditions. Preliminary results suggest that macaque monkeys have similar chromatic cardinal axes as human subjects. (Research supported by the Whitehall Foundation, the Howard Hughes Medical Institute, the National Science Foundation, the Sherman Fairchild Foundation Summer Research Award, the Hubel Summer Research Fellowship and Wellesley College.)

Creativity in Math: Visualizing Different Forms of Arithmetic (interactive teaching presentation)
Pendleton Hall West 116
Amanda Curtis '11, Mathematics, and Jane Rieck '11, Mathematics
Advisor: Alexander Diel, Mathematics

In elementary school arithmetic, you are taught that every math problem has only one answer. Two times six is always twelve. The truth is that this familiar arithmetic is just one of many possibilities. There are other equally valid ways to do arithmetic in which two times six might equal, for instance, zero. Moreover, these “nonstandard arithmetics” have real applications, and are also important objects of study for mathematicians. Studying such a system often involves symbol manipulation, which, while suitable for rigorous proof, can sometimes cloud our intuition about the overall structure of the system. In our research, we are investigating ways of representing these structures visually in order to complement the symbolic approach. In our presentation, we will introduce these nonstandard arithmetical systems and, with the help of our audience, explore several examples. No prior knowledge of mathematics will be assumed.

Social Sciences

Checking “Other”: Labels in a Multicultural World (short talks)
Pendleton Hall East 139

Latinas: Experiences Combining Work and Family Life
Pricilla Gutierrez '13, Sociology
Advisor: Nancy Marshall, Women's and Gender Studies

“Latinas” do not comprise a homogeneous group of individuals. Instead, they span the range of professions, nationalities, education levels, age, class, and even race. The aim of my research is to address the ways this diversity shapes individual Latinas’ experiences with work and family, with a focus on how employment and family life come to interact and intersect. I draw on in-depth interviews that I conducted with Latinas from Southern California. I will discuss their employment histories, and the intersections with family life, in the context of their diverse backgrounds. (Research supported by the Wellesley Centers for Women Class of ’67 Internship.)

Meaning of Race in Multicultural Campus Life
Alice Lee '11, Sociology
Advisor: Joseph Swingle, Sociology

The limits and possibilities of multiculturalism in community life remain deeply contested on college and university campuses. Research on campus diversity from the past two decades have suggested that while institutions are drawing an increasingly heterogeneous pool of students, they are likewise experiencing the cleaving of university spaces into racial-ethnic enclaves. Using 640 surveys from Wellesley seniors and sophomores and in-depth interviews with student organizational leaders, my thesis explores racial bridging and bonding on campus: Does an environment as diverse as Wellesley necessarily translate into healthy cross-cultural exchange, or is diversity counteracted by self-segregation? This study investigates the extent to which pre-college experiences and attitudes surrounding race influence a student’s propensity for multiracial friend groups—a finding that can inform the development of institutional policies aimed at nurturing more intergroup linkages. (Research supported by the Office of the Provost and Dean of the College.)

Immigration, Identity, and Right Extremism: The Construction of Anti-Immigrant Ideology in the Austrian Freedom Party
Megan Henry '11, Sociology
Advisor: Thomas Cushman, Sociology

In recent years, issues of immigration have increasingly shaped social and political discourses around the world. Immigrant groups have been met with growing hostility in nations worldwide, and have been repeatedly characterized as a threat to society by individuals and political parties. This trend is particularly evident in Austria, where anti-immigration and anti-immigrant sentiment has increasingly shaped public debates and become an important political issue. The Austrian Freedom Party (FPÖ), in particular, has both exploited and contributed to political and social tensions over issues of immigration. In doing so, the FPÖ has employed extremist, anti-Muslim and xenophobic language, and has drawn upon notions of an imagined and exclusively Austrian cultural identity and history to frame immigration discourse in Austria. (Research supported by a Wellesley College Student Research Award.)
The Politics of Multiculturalism: Ideas of Nisga’a Self-government, Nationhood, and Citizenship

Lara Yeo ’11, Political Science
Advisor: Joel Krieger, Political Science

In 2000, the Nisga’a Final Agreement came into force and created an unprecedented form of aboriginal self-government in Canada. The Nisga’a nation’s experiment with a “third order” government is an example of Canada’s liberal commitment to accommodating the minority group needs of its multicultural citizenry. But questions remain in theory and practice: is aboriginal self-government a form of cultural accommodation compatible with liberal political theory and is it constitutional in Canada? The debate centers on whether sovereign aboriginal nations can be born from aboriginal treaty rights protected in the Canadian Constitution, and highlights the threat of the Nisga’a Constitution upon the Canadian Constitution’s supremacy. This debate grapples with a rights-centric liberal political paradigm, as not all aboriginal peoples subscribe to this political paradigm and have different interpretations of nationhood and citizenship. (Research supported by the Office of the Provost and Dean of the College.)
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