The Ruhlman Conference

It gives us great pleasure to welcome you to the 2006, 10th anniversary 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 will provide 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 will 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 will demonstrate 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 will include 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 250 Wellesley students, the 2006 Ruhlman Conference is organized around eight major themes: About Wellesley, Economic Issues, Literature and the Arts, Multicultural Research, Political Development, Science and Technology, Self and Identity, and Social Analysis. We encourage you to experience the diversity and richness of student achievement at the conference and wish to express our thanks and congratulations to all students participating in this special event.

The 2006 Ruhlman Committee

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*Auxiliary Services*
Joan Campbell  
*Information Services*
Susan Cohen  
*Office of the Class Deans*
Loli Hernandez  
*Class of 2008*
Jessica Irish  
*Art*

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*French*
Dennis Smith  
*Biological Sciences*
Akila Weerapana  
*Economics*
Adele Wolfson  
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We gratefully acknowledge support from the following sponsors:

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History of the Ruhlman Conference

By Lee Cuba

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 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 to 7 pm 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 over-populated 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 spent 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.
## Thematic Overview

### About Wellesley
- Classes and Years: Learning as We Go (short talks) 4:30 Pendleton East 239

### Economic Issues
- Trade Protection: Saving Jobs or Financing Inefficiency? (panel) 9:30 Pendleton East 239
- Catfish, Mushrooms, and Plastic Bags: American “Free” Trade in Action (panel) 11:00 Pendleton East 339
- Boom or Bust: Global Economics (short talks) 1:30 Pendleton East 139

### Literature and the Arts
- Reading Social Climate (short talks) 9:30 Pendleton East 339
- Reading between the Covers: Interplays of Structure and Culture in Historical Bookbinding (field studies) 9:30 Clapp Special Collections
- Two Romantic Chamber Music Masterpieces: Mendelssohn and Brahms (long performance) 9:30 Jewett Auditorium
- Sex, Pride, and Prejudice: Why *Don Quixote* Remains Relevant after 400 Years (panel) 11:00 Pendleton East 139
- The Boston Urban Ceilidh: The Folk Process Goes to Town (interactive teaching) 11:00 Jewett 106
- Chopin and Schumann: Reflecting Autobiographical Narrative in Performance (long performance) 11:00 Jewett Auditorium
- The Artist in Context (short talks) 11:00 Davis Museum
- Asian-American Literature (panel) 1:30 Pendleton East 339
- Living Books: Spending Time in the Book Arts Lab (interactive teaching) 1:30 Clapp Book Arts
- Beautiful Bare Bones: An Exhibit of Drawings of the Human Skeleton by Students in ARTS 217 (exhibition) 1:30 Jewett Student Gallery
- Hurricanes, Heroines, Heinous Harlotry, and Hilarity (long performance) 1:30 Alumnae Hall
- Three Authors from the British Isles (short talks) 3:00 Pendleton East 339
- The Joy of Ensemble: The Wellesley Chamber Music Society and Voice Studios in Collaboration (long performance) 3:00 Jewett Auditorium
- Stories and Poems from America and Beyond (literary reading) 3:00 Lulu Chow Wang Campus Center 413

### Multicultural Research
- Faith in Action and Interaction (interactive teaching) 11:00 Pendleton West 212
- Cultural Divides around the World (short talks) 3:00 Pendleton West 212
- Images of Globalization: Independent Research from SOC 321 (panel) 4:30 Science Center 278

### Political Development
- National Binds: Repression, Compassion, and the Flag (short talks) 1:30 Science Center 396
- Feminators: Women as Social and Political Activists (short talks) 3:00 Pendleton East 239
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<td>Chloroplast Movement (panel)</td>
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<td>A Chemical Approach to the Treatment of Diabetes (panel)</td>
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Conference Schedule

8:30 - 9:30 Continental Breakfast

Continental breakfast served in Pendleton Atrium and Science Center Lounge.

9:30 – 10:40

**Economic Issues**

**Trade Protection: Saving Jobs or Financing Inefficiency? (panel)** Pendleton East 239
Priyanka Ramamurthy, Evadne I. Cokeh, Nicole S. DuRand, Alexis A. Frank, Roberta C. Saint-Amour, Maggie D. Settli, and Eden Hodde

**Literature and the Arts**

**Reading Social Climate (short talks)** Pendleton East 339
Ana Phakhin, “A Question of Honor: The Caballero and Picaro in Spanish Golden Age Drama”
Arielle J. Galambos, “The Depiction of Arabs in Israeli Literature”
Julie Camarda, “Emerson and James: Cross-currents in American Philosophy”
Christiana Moldrem, “Forging a National Identity: Early American Drama, Storytelling and the National Character”

**Reading between the Covers: Interplays of Structure and Culture in Historical Bookbinding** (field studies) Clapp Special Collections
Allie Leah Thompson

**Two Romantic Chamber Music Masterpieces: Mendelssohn and Brahms (long performance)** Jewett Auditorium
Jennifer M. Chen, Heather Hausladen, Allison Kao, Ayako Kubodera, Rathika Nimalendran, Katherine Roth, and Cecilia Zhou

**Science and Technology**

**Chloroplast Movement (panel)** Science Center 396
Kristen Granger, Brooke Maurer, Anika Lucas, and Elizabeth Marlow

**A Chemical Approach to the Treatment of Diabetes (panel)** Science Center 104
Julia Lin, “Synthesis and Analog Studies of the GLP-1R Antagonist T-0632”
Margaret Thompson, “A Chemical Approach to the Treatment of Diabetes”
Leslie G. Oesterich, “Preparation of Fluorescent Amino Acids for Incorporation into Biologically Active Peptides”
Rachel Buglione-Corbett, “A Chemical Approach to the Treatment of Diabetes”

**Social Analysis**

**In the Shadow of the Sun: Women’s Issues in Contemporary Japan (panel)** Pendleton East 139
Cathleen C. Chuang, Jhia-Huei Gan, Lauren N. Yasuda, and Stephanie Hsuan-chia Chen

**The Aftermath of Hurricane Katrina: Manifestations of Social Inequality (panel)** Pendleton West 212
Cristin Bates, Rebekah Petek Altug, and Joyce Hahn
10:40 – 11:00 Break

Continental breakfast served in Jewett Lobby, Pendleton Atrium, and Science Center Lounge.

11:00 – 12:10

Economic Issues
Catfish, Mushrooms, and Plastic Bags: American “Free” Trade in Action (panel)  
Pendleton East 339
Monique Abrishami, Jerilyn Libby, Jamie Rosen, Melissa Chow, and Adrienne Hathaway

Literature and the Arts
Sex, Pride, and Prejudice: Why Don Quixote Remains Relevant after 400 Years (panel)  
Pendleton East 139
Jo Ann Gerber, Caitlin M. Harrington, Courtney E. Mosca, and Lenna Onishi

The Boston Urban Ceilidh: The Folk Process Goes to Town (interactive teaching)  
Jewett 106
Siena Kaplan

Chopin and Schumann: Reflecting Autobiographical Narrative in Performance (long performance)  
Jewett Auditorium
Karen K. Chan and Jen Kunzendorf

The Artist in Context (short talks)  
Davis Museum
Sylvia Kuyel, “Lobbies and Fences: Redefining Accessibility through Art”
Jessica A. Goldman, “Aesthetic Orientation and the Highly Sensitive Temperament”
Nandita Dinesh, “Performing Politics: Using Theatre to Address Conflict”

Multicultural Research
Faith in Action and Interaction (interactive teaching)  
Pendleton West 212
Colleen Hibbert, Rebecca Kapler, and Prema Polit

Science and Technology
Basic Science towards Clinical Ends (short talks)  
Science Center 278
Meghan Fennell Hogan, “Progress towards the Preparation of a Vancomycin Derivative Containing a Septanose Residue at the Vancosamine Position”
Heather L. Bowling, “A Volumetric Comparison of Different Brain Regions in a Rett Syndrome Mouse Model”
Boryana Mihaylova and Emily Glynn, “A Novel Monoclonal Antibody and Its Implications in Pancreatic Cancer Therapy”

Bacteria: For and Against? (short talks)  
Science Center 396
Alissa Rose Cohen and Li Xiong, “Prancing Proteins and Morphing Models: Computational Modeling of Bacterial Cyclic Nucleotide Gated Ion Channels”
Rachel B. Nelson, “Translocation of the Antimicrobial Peptide Buforin II across Lipid Bilayers”
Erika Uyterhoeven and Nancy Sandoval, “Battling Bacteria through DNA Binding”

The Planet that Lost Weight and Other Astronomical Anecdotes (panel)  
Science Center 277
Jennifer Carne, Eylul Dogruel, Christin Ho, Sarah Maynard, Katie Soperza, Talia Seperisky, Alessandra Springmann, Cody Squire, and Amanda Zangari

Watery Worlds: Looking at Oceans and Lakes (short talks)  
Pendleton West 116
Naomi Wells, “Predicting the Long-term Behavior of Crude Oils in the Coastal Marine Environment through Compositional Analysis of the Sediments”
Debra Hausladen and Erin Ryan, “Uprooting Lake Waban: The Bioaccumulation of Heavy Metals”
Self and Identity
Finding Your Power: A Workshop with Girls’ LEAP Self-defense (interactive teaching) Pendleton West 220
Laura van der Pol

Igneous Path: Copper Plate Prints and Photo Essay (exhibition) Jewett Student Gallery
Beth K. Pfeiffer

Social Analysis
The Hip-Hop Speaks: Critiquing Cultural Uses of Hip-Hop Culture in the Socialization of Black Youth (panel) Pendleton East 239
Surayyah T. Hasan, Natalie Maddox, and Nicole Maddox

12:10 – 1:30 Lunch
All members of the Wellesley College community are invited to enjoy lunch on the Wang Campus Center lawn. (In the event of inclement weather, the lunch will remain in the same tented service location with the Campus Center and Alumnae Hall as indoor rain locations.)

1:30 – 2:40

Economic Issues
Boom or Bust: Global Economics (short talks) Pendleton West 116
Dubravka Colic, “Minimum Wages in Eastern and Central Europe: Effects on Employment and Inequality”
Dwyer Gunn, “The Effects of IMF vs. non-IMF Fiscal Adjustments in Developing Countries”
Marina Turlakova, “Determinants of Enterprise Performance in Russia”
Adrienne Hathaway, “Capturing the Gains from Trade: Lessons from Spain’s Accession into the European Community”

Literature and the Arts
Asian-American Literature (panel) Pendleton East 339
Nan Chen, Victoria Charoonratana, Lauren R. Gibbs, Leslie J. Kim, and Courtney C. Stepien

Living Books: Spending Time in the Book Arts Lab (interactive teaching) Clapp Book Arts
Becky Levine, Alexandra Courcoulas, Jenny E. Kim, and Rachel Flynn

Beautiful Bare Bones: An Exhibit of Drawings of the Human Skeleton by Students in ARTS 217 (exhibition) Jewett Student Gallery
Katherine Ames Ackerman, Taline Sonya Boghosian, Adrienne Zoe Borders, Alison Carney, Tiffany Shi Ying Chew, Caitlin Marie Harrington, Leilani Venus Jambor, Kathy Mu, Amara Jane Chinelo Nwosu, Anya Ravitz, Stephanie Mae Rounds, Alexandra Yasmina Roy, Corianna O’Shaughnessy Snedecor, Emily Yi-Tzu Wu, and Alyse Yichi Zhang

Hurricanes, Heroines, Heinous Harlotry, and Hilarity (long performance) Alumnae Hall
Megan Teckman, J. Rachel Anderson, Christiana Molldrem, Nandita Dinesh, and Bethany Winkels

Political Development
National Binds: Repression, Compassion, and the Flag (short talks) Science Center 396
Stephanie Landers, “Sarvodaya: How Spirituality Influences a Development Movement”
Lily Balloffet and Rebeca Tezaguic, “Memory and the Body as Political Entities”

Science and Technology
Models: Not All Science Is Wet (short talks) Science Center 278
Mona Ali, “Expected Properties and Experimental Signals of Bose Einstein Condensed Atoms”
XinXin Du, “Simulations on Magnetic Models of High Temperature Superconductors”
Kathryn Matthews, “Can Quantum Mechanical Calculations Be Used to Predict Potential Lasing Efficiency of Ultraviolet Laser Dyes?”
Claire Reddy, “Searching for Quantum Mechanical Explanations for Non-Planar Carbonyl Moieties”

**Explaining the Digital Divide: Topics and Issues from the Rise in New Computer Technology in Education (panel)** Pendleton East 239
Aysha Gregory, Kendall LaSanie, Mascharney Franklin, and Dorothy Brown

**Channels and Proteins (poster session)** Science Center Focus
Margaret Blattner, “Substitution of a Thioamide Functional Group in a Model Beta-Sheet Peptide Structure”
Gabriela Hayes and Michelle Song, “An Enzyme’s Search for the Perfect Dancing Partner: It’s Good to Be Flexible!”
Alissa Rose Cohen and Li Xiong, “Prancing Proteins and Morphing Models: Computational Modeling of Bacterial Cyclic Nucleotide Gated Ion Channels”

**Blue-Green Like Me (poster session)** Science Center Focus
Maua Herme, “Proteomic Analysis of the Expression of Stationary Phase Acid Stress Proteins of Cyanobacterium *Synechocystis* sp. strain PCC 6803 at pH 6.2”
Valeria M. Riguero and Charlene C. Chong, “Does the Cyanobacterium *Synechocystis* sp. strain PCC 6803 Form a Biofilm?”
Deborah Park and Christina K. Chae, “The Regulation of Nitrate Reductase in Cyanobacteria”
Michelle Nguyen and Ashmita Banerjee, “Use of $^{31}$P and $^{23}$Na NMR Spectroscopy to Characterize pH Homeostasis in *Synechocystis* sp. strain PCC 6803”

**Self and Identity**

**Poetry into Song: D.G. Rossetti’s Sonnets Set to Music (interactive teaching)** Pendleton West 212
Joanna Swafford

2:40 – 3:00 Break

Refreshments served in Pendleton Atrium and Science Center Lounge.

3:00 – 4:10

**Literature and the Arts**

**Three Authors from the British Isles (short talks)** Pendleton East 339
Kara Lee Donnelly, “My Name Is Paula Spencer: The Voice of the Other in Roddy Doyle’s Novels”
Erica I. dela Cruz, “The Same Subject Diverted: The Derationalization of William Hazlitt”
Meg Tirrell, “Minor Characters in Major Roles: The Many Layers of Tom Stoppard”

Aubre Carreón Aguilar, Rebecca Ampornsah, Tara Augenstein, Michelle Bourgeois, Rachel Buglione-Corbett, Ashley Coale, Ashley Hanks, Natalie Harrington, Julia Harte, Joana Kung, Jennifer Kunzendorf, Elizabeth Merrill, Christiana Molldrem, Dana Montaltn, Nayantara Mukherji, Leslie G. Oesterich, Isabelle Plaster, faculty, Rachel Reeds, Karen Sauer, faculty, Simone Seol, Christina Tognoni, and Mark Adamo, guest composer

**Stories and Poems from America and Beyond (literary reading)** Lulu Chow Wang Campus Center 413
Marion Ballas and Catherine Walton, “The Adventures of Katherine and Gus: Readings of Two Children’s Picture Books”
Kate Broad, “Cities of the Living, Cities of the Dead”
Lauren Holmes, “‘Grandma’: A Short Story”
Multicultural Research

**Cultural Divides around the World (short talks)**  
Pendleton West 212

- N’Mah Yilla, “Muslims United? Uncovering Segregation among Muslims in Lleida, Spain”
- Shayla Adams, “Inequality in Access: How Does Accessibility to Course Work Affect Standardized Testing among Minority Youth?”
- Shoshana Maxwell, “The Influence of Location on Infertility: Social Perspectives and Treatment Strategies in Senegal”
- Valerie Kua, “The Other in Hernán Cortés’s Letters: Antithesis or Reflection of the Self?”

Political Development

**Feminators: Women as Social and Political Activists (short talks)**  
Pendleton East 239

- Eleanor Blume, “Progressive Philanthropy and the Funding of Social Change at the Boston Women’s Fund”

Science and Technology

**Brains Revealed: MRI Studies at Wellesley (short talks)**  
Science Center 278

- Jane Rodgers, Do-Quyen Pham, and Jane Shin, “Using Mn²⁺ Contrast Enhancement in a Functional MRI Study of the Crayfish Sensory Systems”
- Meera Sheffrin and Jessica Markham, “Using Nuclear Magnetic Resonance Spectroscopy to Understand Brain Chemistry in Rett Syndrome”

**Cleanliness Is Next to Neurogenesis (poster session)**  
Science Center Focus

- Natalia Topik, Anne Chiao, Jacy Park, and Rebeca Tezaguic, “Radiating Physical Attractiveness and Social Skills from a Male Stimulus to a Female Target in a Romantic Relationship”
- Elizabeth Kelley, “The Impacts of Acid Deposition: Why the Clean Air Act Amendments (CAAA) of 1990 Are Insufficient”
- Maria Genco and Suzanne Forrest, “Making New Neurons: The Importance of Light and Locomotion”
- Anne A. Madden and Maria V. Banica, “Poisons, Pollution, and Plasmids: Antibiotic and Heavy Metal Resistance in Bacterial Isolates from a Contamination Site”

Social Analysis

**Constitutional Challenges: Genes, Penalty, and Porn (short talks)**  
Science Center 396

- Katherine T. Adams, “Young Adult Literature and Censorship”
- Courtney Klaips, “Pornography as Product: A Speech Act Approach to Free Speech”
- Ashley D. Hicks, “We Were ‘Born This Way!’ The Ethics of Searching for a Gay Gene”

**Within Self/Without Self (short talks)**  
Pendleton East 139

- Emily Newberg, “Predictors of Adolescent Girls’ Parasocial Relationships with Media Figures”
- Ashley Groh, “A Social Comparison: Children’s Imaginary Companions and Real Friends”
- Carly M. Fair and Katherine E. Tyson, “Memory for Stories with and without Supplemental Sensory Engagement”

**Work and Families: The State of Social Policies (panel)**  
Pendleton West 116

- Christann Spiegel, “How Low-Income Families Manage Child Care and Employment Given the Current Child-care Policy Context”
4:10 – 4:30 Break

*Refreshments and hors d’oeuvres served in Pendleton Atrium and Science Center Lounge.*

4:30 – 5:40

About Wellesley

**Classes and Years: Learning as We Go (short talks)**  
Pendleton East 239
Caterina D. Del Conte Brandon and Madeline L. Surgenor, “The Power of Oratory: A Classroom Ethnography”
Cristin Bates, “The First-Year Experience at Wellesley: Students’ Transition to College”
Stephanie L. Abbott, Katherine M. O’Connor, and Danielle Paxton, “You Get What You Give: Lessons in Microteaching”

Multicultural Research

**Images of Globalization: Independent Research from SOC 321 (panel)**  
Science Center 278
Rebekah Petek Altug, Shavanna Calder, Stella Silverstein, and Shin Bin Tan

Science and Technology

**The Atmosphere and Beyond (short talks)**  
Science Center 104
Amanda Zangari, “Radial Velocities of Circumstellar Line Features in the Ultraviolet Spectrum of the Binary Star System VV Cephei”
Sarah Maynard, “Light-curve Study of Koronis Family Asteroids and Adventures on the Way”

**Modifying Our World: Original Projects in Biomaterials and Nanotechnology (panel)**  
Pendleton East 139
Jessica Bell, Annie Gaffey, Ellane Park, Munzarin Qayyum, and Katie Wagner

Self and Identity

**Bach’s Life Lessons: Reflections on Studying and Performing Partita no. 2 in D Minor (long performance)**  
Pendleton West 220
Erika Larson

Social Analysis

**Political Interventions: From Anarchy to Genocide (short talks)**  
Pendleton West 212
Elizabeth Breese, “Civilizing’ the Military: A Sociological Analysis of Human Rights Education in the U.S. Army”
Selina Cruz-Charrez, “Organizing Anarchy: Negotiating the Tension between the Assertion of the Individual and the Creation of Collective Good”
Jessica Lee, “From Governor Blagojevich to Senator Clinton: Electrifying the Progressive Base at the American Democracy Institute’s Midwest Regional Summit”
Michelle Iandoli, “Genocide: What Are the Most Successful Strategies for Intervention?”
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Trade Protection: Saving Jobs or Financing Inefficiency? (panel)
Pendleton East 239


Advisor: David L. Lindauer, Economics

Trade protection, in the form of tariffs and quotas, is intended to mitigate the unfair trade practices of foreign countries while saving American industries and jobs. However, economic analysis indicates that protectionism finances inefficiency, increases prices, and decreases social welfare. In reality, trade protection is a business strategy that increases revenue for CEOs. By analyzing three domestic industries – tissue paper, ferrovanadium, and purified CMC, we will reveal the flawed determination process adopted by the U.S. government to determine the “fairness” of trade practices, the real reasons why each industry is failing, the chain reaction set off by protectionism, and the burden placed on American consumers.

The Depiction of Arabs in Israeli Literature

Arielle J. Galambos ’06, History

Advisor: Anna Ronell, Jewish Studies

Literature has a unique ability to shape public opinion, or even change the course of history. Works such as Stowe’s Uncle Tom’s Cabin, and Sinclair’s The Jungle helped initiate societal change. Therefore, to understand a society’s history, it is important not only to consider political events, but also to examine how factors such as literature have made their historical marks. Israel has been the center of political unrest for nearly a century. With no foreseeable end to the ongoing violence, piecing together the causes of discord is essential. One way to study the Arab-Israeli conflict is through Israel’s literary canon. Observing how authors crafted Arab characters and their visions for Israel’s future allows one to enter the minds of Israelis and view the Arab-Israeli conflict through their eyes. Considering the portrayal of Arabs by renowned Israeli authors in historical context strengthens the understanding of what ideas shape this longstanding conflict.

Forging a National Identity: Early American Drama, Storytelling, and the National Character

Christiana Molldrem ’06, Theatre Studies and American Studies

Advisor: Nora Hussey, Theatre Studies

If you founded a country, what stories and values would you use to bring the people together? Playwriting and American theater came to fruition in the early federal period. The plays of the period can be used as a litmus test to see to which stories the country was connecting. Before these stories were written as plays, they were told as stories that every new American citizen was familiar with: the equivalent of eighteenth-century pop culture. I will be sharing some of my research and telling a few of the stories that brought together and shaped America.
Reading between the Covers: Interplays of Structure and Culture in Historical Bookbinding (field studies) Clapp Special Collections

Allie Leah Thompson ‘06, Cognitive and Linguistic Sciences

Advisor: Lilian Armstrong, Art

The binding on a book is never the inevitable accompaniment of its text; a wide array of structural options exists and each binding has life breathed into it by the choices made in its construction. Since the earliest Mediterranean codices, functional demands and aesthetic tastes have dictated variety and diversity. Within chronological and national boundaries, stylistic preferences formed, such that times and places are now associated with specific methods used to sew the pages together, shapes for the covers of boards, and decorative elements like clasps and blind tooling. In studying these choices from the Mediterranean codices to Renaissance vellum bindings, the observer is informed not only about shifts in craftsmanship and construction, but also about cultural interpretations of the texts. Historical and modern research, examples from Wellesley College’s Special Collections, and reconstructed models of these bindings provide the means of exploring the book-bound past.

Two Romantic Chamber Music Masterpieces: Mendelssohn and Brahms (long performance) Jewett Auditorium

Jennifer M. Chen ‘07, Neuroscience, Allison Kao ‘06, Biological Sciences, Ayako Kubodera ‘08, Economics, Rathika Nimalendran ‘08, Katherine Roth ‘08, and Cecilia Zhou ‘08, Economics

Advisor: Jan Pfeiffer, Music

1790 to 1910 is known as the Romantic Era in classical music, expressed by the whimsical, strange and fantastic, characterizing the newly found interests in both natural and supernatural.

Piano Trio in D Minor won Felix Mendelssohn-Bartholdy (1809-1847) the title, “Mozart of the Nineteenth Century”. Inheriting balance and symmetry from Viennese Classical style, Mendelssohn composed with elegance. His technique and passion merge in this piece, producing an inebriating watercolor of music.

In Germany, Johannes Brahms (1833-1897) was a master of creating new forms of harmony and expressions while adhering to traditional forms. His works span a wide range, from symphonies to overtures and choral works to chamber music. The Piano Quartet in C Minor was written to reflect a difficult time in life. The anger and pain, as well as love and sadness, display the growth and evolution of himself and his work.

Science and Technology

Chloroplast Movement (panel) Science Center 396

Kristen Granger ’06, Biological Sciences, Brooke Maurer ’08, Biological Chemistry and Political Science, Anika Lucas ’08, Neuroscience, and Elizabeth Marlow ’08, Neuroscience

Advisor: Martina König, Biological Sciences

To investigate the mechanisms that allow chloroplasts to move along the actin cytoskeleton in Arabidopsis thaliana, we are inspecting stable EMS-mutants as well as genotyping T-DNA insertional mutants to establish homozygous mutant lines. Using confocal microscopy and leaf transmission data we are examining the effects of mutations in genes involved in chloroplast division on the actin cytoskeleton and characterizing a novel mutant exhibiting a few large chloroplasts and inhibited movement. We are also studying chloroplast movement and the associated changes in actin structure and arrangement within the guard cells, which regulate the opening and closing of the plants’ stomata. (Research supported by the Howard Hughes Medical Institute.)

A Chemical Approach to the Treatment of Diabetes (panel) Science Center 104

Synthesis and Analog Studies of the GLP-1R Antagonist T-0632

Julia Lin ’07, Chemistry

Advisor: David R. Haines, Chemistry

The glucagon-like peptide-1 (GLP-1) is an incretin hormone released when there are high levels of glucose in the body. GLP-1 induces the production and release of insulin when bound to the GLP-1 receptor (GLP-1R). The non-peptide antagonist of the GLP-1R, T-0632 (1), inhibits the activation of GLP-1R by GLP-1. The binding of T-0632 to GLP-1R includes amino acid residues involved in the activation of the receptor. Utilizing the selectivity of T-0632 binding to the GLP-1R and known parameters for receptor activation, structural modifications can be made to T-0632 to form agonists of GLP-1R, thus creating a series of potential lead drug compounds for diabetes treatment. T-0632 can be efficiently synthesized in nine steps. This synthesis and the preparation of the active variations of T-0632 will be discussed. Binding profiles and c-AMP induction activities of the T-0632 analogs will be presented. (Research supported by the Roberta and Karl Staley Fund.)
The Synthesis of Histidine Analogs: A Chemical Approach to the Treatment of Diabetes

Rebecca Roush ’06, Biological Chemistry
Advisor: David R. Haines, Chemistry

Insulin production requires the activation of the glucagon-like peptide-1 receptor (GLP-1R) in pancreatic cells by the glucagon-like peptide-1 (GLP-1). Currently, drug design is focusing on targeting GLP-1R to induce an insulin response in the patient to avoid direct insulin injection. The N-terminal histidine of GLP-1 is known to be important in the binding of GLP-1 to GLP-1R and essential to the ability of GLP-1 to activate GLP-1R. The twenty natural amino acids are insufficient in variety for detailed structure activity studies of histidine binding sites. A series of histidine analogs (including (1) and (2)) have been synthesized with pKa’s and ring nitrogen placements that differ systematically from those of histidine. It is evident from early results that the binding potential/biological activity of N-terminally modified GLP-1s varies greatly with the heteroatom position and pKa. These findings, together with ongoing analyses, provide further insight into the structural requirements of receptor-agonist interaction.

A Chemical Approach to the Treatment of Diabetes

Margaret Thompson ’08, Chemistry
Advisor: David R. Haines, Chemistry

The small peptide hormone insulin is an important part of human metabolism. Patients who lack the ability to produce sufficient functional insulin suffer from type 2 diabetes mellitus. A better understanding of the pathway that produces this vital molecule can lead to new treatments for the disease. One portion of the insulin induction pathway being studied is the interaction between the glucagon-like peptide 1 (GLP-1) and glucagon-like peptide 1 receptor (GLP-1R). One part of GLP-1 acts by binding to GLP-1R, while a second part of GLP-1 serves to activate GLP-1R to eventually lead to insulin production. My current work is the development of a molecular system that will specifically and strongly bind the activating regions of GLP-1 to GLP-1R, so that only the activating regions of the receptor can be studied. The molecule that mediates the binding (1, 2) and its synthesis will be discussed.
Preparation of Fluorescent Amino Acids for Incorporation into Biologically Active Peptides

Leslie G. Oesterich '06, Biological Chemistry and Music
Advisor: David R. Haines, Chemistry

Binding studies of peptide ligands to receptors are often done by competition with radioactive forms of natural ligands. These natural ligands often have very high binding constants, and, as such, overwhelm the binding of the test peptides, even though it can be demonstrated that these test peptides result in activation of the receptor. We have developed coumarin-based fluorescent amino acids which can be incorporated into peptide synthesis, and which will allow detection of low levels of peptide binding by observation of fluorescent emission under noncompetitive conditions. The synthesis of these amino acids will be discussed, as will the results of the application of this methodology to GLP-1R binding peptides.

A Chemical Approach to the Treatment of Diabetes

Rachel Buglione-Corbett '07, Biological Chemistry
Advisor: David R. Haines, Chemistry

The 30-residue glucagon-like peptide-1 (GLP-1) is the natural activator of the GLP-1 receptor (GLP-1R), inducing the production and secretion of insulin by pancreatic beta cells. A 39-residue peptide isolated from Gila monster venom, Exendin-4 (Ex-4), has been shown to be an agonist of the GLP-1R. A truncated Ex-4 is used to examine the flexibility of the peptide’s N-terminal activating region, in the context of GLP-1R activation and insulin stimulation. Currently, a nonpeptide tether is being used to attach the natural GLP-1 N-terminal tripeptide molecule to the binding region of truncated Ex-4. Our goal is to alter Ex-4 such that the synthetic agonist has improved binding ability along with consistent activation of GLP-1R. Experimental synthesis mechanisms and the progress of synthesis will be presented.

(Research supported by Merck SURF Program.)

The Aftermath of Hurricane Katrina: Manifestations of Social Inequality

Cristin Bates '08, Sociology, Rebekah Petek Altug '08, Sociology, and Joyce Hahn '06, Political Science and Sociology
Advisor: Markella Rutherford, Sociology

Utilizing theories about social inequality and its reproduction over time, we will describe the devastation caused by Hurricane Katrina in New Orleans and reveal how certain segments of the population were at particular risk in this disaster. Changes in the makeup of neighborhoods in New Orleans over the past century have led to a growing divide between areas of wealth and poverty. The resulting residential segregation weakened the ability of certain neighborhoods to deal adequately with disaster by isolating residents and preventing them from acquiring economic and social resources. In addition to speaking about our research, two members of our group will also share what it was like to work as part of the relief effort in towns outside New Orleans.

In the Shadow of the Sun: Women’s Issues in Contemporary Japan

Cathleen C. Chuang '07, Political Science, Jiha-Huet Gan '08, East Asian Languages and Literatures and Cognitive and Linguistic Sciences, Lauren N. Yasuda '06, East Asian Studies, and Stephanie Hsuan-chia Chen '06, Mathematics and Japanese Language and Literature
Advisor: Yoshimi Maeno, East Asian Languages and Literatures

Japan has undergone cultural upheaval since the end of World War II. The resulting amalgam of East and West continues to exert its influence on national values and iconography, especially when it comes to women. Contemporary Japan remains a largely patriarchal society, which defines the foundations of Japanese sociocultural paradigms: what is acceptable and what is not. Using Japanese national census data, government publications, newspapers, and Web sites of special interest groups, we are attempting to understand the current social issues of Japanese women through different types of mass media. This presentation hopes to address the latest cultural trends among Japanese women, including the perceptions of beauty, the social significance of the Japanese schoolgirl, views on family planning, and changing trends in marriage and childbearing.
Monique Abrishami ’06, Political Science, Jerilyn Libby ’06, Political Science and Economics, Jamie Rosen ’07, Economics, Melissa Chow ’06, Economics, and Adrienne Hathaway ’06, International Relations and Spanish
ADVISOR: David L. Lindauer, Economics
Free trade rhetoric is so prevalent in American politics that the average citizen might not realize her government’s subtle tendency towards protectionism. In the United States, the International Trade Commission (ITC) and the International Trade Administration (ITA) make many decisions each year that determine the fate of imported products. Issues of free trade move from the runway of the Miss Catfish Pageant, the halls of the American Mushroom Institute, and the check-out aisles of the local supermarket to the hearing room of the ITC in a struggle between American manufacturers and their foreign counterparts. Case studies of three deceptively mundane items—catfish, preserved mushrooms, and plastic shopping bags—reveal that the United States employs a flawed calculation system to identify and tax “unfairly” priced imports. We use our spring 2005 final projects for ECON 214 to debunk the myths of American free trade and explore the implications of veiled protectionism.

The Boston Urban Ceilidh: The Folk Process Goes to Town (interactive teaching) Jewett 106
Siena Kaplan ’06, Environmental Studies
ADVISOR: Tamar Barzel, Music
The Boston contains a lively and vibrant manifestation of the Celtic music tradition. My independent study in ethnomusicology involves experiencing, recording, and analyzing this scene. In the course of this project I also investigate how Celtic music from Cape Breton, Scotland, and Ireland migrated and evolved to emerge as this unique Boston style, which is simultaneously rooted in tradition and indisputably modern. This seventy-minute interactive session will introduce audience members to this style and its context through an oral presentation, making heavy use of video clips, audio samples, and live demonstration. Audience members will also participate in a Celtic dance that will help illustrate some of these concepts.

Sex, Pride, and Prejudice: Why Don Quixote Remains Relevant after 400 Years (panel) Pendleton East 139
Jo Ann Gerber DS’09, Spanish, Caitlin M. Harrington ’06, Political Science and Spanish, Courtney E. Mosca ’06, Architecture and Spanish, and Lenna Onishi ’06, Spanish and Psychology
ADVISOR: Jill Syverson-Stork, Spanish, and Elena Gascon-Vera, Spanish
Don Quixote, Miguel de Cervantes’ novel in two volumes about an aging country gentleman who seeks adventures as a knight errant, celebrated its 400th anniversary in 2005. From the moment the title character made his debut in 1605, the irascible man from La Mancha became an instant hit with readers, earning Cervantes the reputation as author of the first modern novel. And yet, within the Wellesley community, this revolutionary text is not taught in its entirety outside the walls of the Spanish department. Our panel members will share the research they’ve done and the personal insights they’ve gained from exploring the universal and modern themes of Don Quixote in the hopes that others will be inspired to discover, as they have, why an old man and his faithful servant have managed to retain their long-lasting appeal and why the novel continues to be perennially pertinent over centuries of time.

Chopin and Schumann: Reflecting Autobiographical Narrative in Performance (long performance) Jewett Auditorium
Karen K. Chan ’06, Music and Neuroscience and Jennifer Kunzendorf ’06, Music
ADVISOR: Charles Fisk, Music
ACCOMPANISTS: Olga Talroze (Chopin) and Charles Fisk (Schumann)
How can musical analysis and historical study affect musical performance? These two performance projects—engaged with music by two Romantic composers who were exact contemporaries—explore the biographical circumstances of particular works. Karen Chan will consider and perform the intimately lyrical Piano Concerto in F Minor by Frédéric Chopin (1810–49), composed shortly before he left his native Poland in 1830 and nostalgically echoed in the C-sharp Minor Nocturne from the ensuing lonely winter in Vienna. Jen Kunzendorf will discuss and sing the moody but ultimately exalted Liederkreis, op. 39 by Robert Schumann (1810–56), set to poetry of Friedrich von Eichendorff and composed in 1840 during the final months of his engagement with Clara Wieck. (Jen Kunzendorf’s research supported by a Schiff Fellowship.)

The Artist in Context (short talks) Davis Museum
Rachel bas-Cohain, 1937-1982: “In the Middle, Somewhat Elevated”
Jennifer Cauley ’07, Art History
ADVISOR: Patricia Berman, Art
Beautiful, sensuously tactile, witty, and employing materials as diverse as copper pipes, latex, soap, and organza, the significant work of the late American artist Rachel bas-Cohain engaged the political and art historical contexts that informed its production. In the early 1970s, bas-Cohain joined a growing number of feminist artists determined to subvert the masculinism of the white, male art establishment. Through their activism and
artistic production these women effected profound change, creating new exhibition opportunities for themselves and other under-represented artists while undermining exclusionary modernist art criticism. Art historically neglected, the body of bas-Cohain’s conceptual work remains outside the dominant paradigm of feminist art, which often reclaimed materials, processes, and subject matter coded and debased as “feminine.” This presentation will consider the subversive, socially engaged feminist production of Rachel bas-Cohain, whose promising career was abruptly ended by her premature death. (Research supported by a Pamela Daniels Fellowship and art department funds.)

**Lobbies and Fences: Redefining Accessibility through Art**

*Sylvia Kuyel ’06, Art History and Economics*

**ADVISOR:** Patricia Berman, Art

This talk addresses intellectual accessibility in modern public art, using the work of Keith Haring (1958-1990) as a case study. Internationally famous for his subway drawings and graffiti-inspired oil paintings, Haring was a founder of the “graffiti art” gallery movement. Moving between his elite production and public paintings rendered in working-class neighborhoods, Haring negotiated an identity as a community activist as well as a fine artist. His art was often called “accessible.” But was it? Using the artist’s murals at Woodhall Hospital in Brooklyn (1986) and the Carmine Street Swimming Pool (1987) in Greenwich Village, this talk probes the problem of viewer perception and accessibility. Were these murals for the community and about the community, or are they more about external art-world dynamics? The murals, as community markers and place makers, articulate Haring’s declared aim to address a broad range of audiences while simultaneously avoiding issues of art as commodity.

**Aesthetic Orientation and the Highly Sensitive Temperament**

*Jessica A. Goldman ’06, Psychology*

**ADVISOR:** Jonathan Cheek, Psychology

Elaine Aron defines a Highly Sensitive Person, or HSP, as a person who was born with an extremely sensitive nervous system. Aron identifies aesthetic sensitivity and interest in the arts as characteristic of the highly sensitive temperament, but she does not support her assumption with adequate empirical research. Aron also describes the highly sensitive person as having a “rich inner life.” Aesthetic orientation and inner life measures were used in a survey of 100 Wellesley College students to assess whether or not a relationship exists between the highly sensitive temperament and aesthetic orientation. Results will be discussed in terms of their implications for understanding the developmental relationship between biological temperament and adult personality. (Research supported by the Office of the Dean of the College.)

**Performing Politics: Using Theatre to Address Conflict**

*Nandita Dinesh ’06, Theatre Studies and Economics*

**ADVISOR:** Nora Hussey, Theatre Studies

Since 1986, northern Uganda has been ravaged by a war between the government of Uganda and a rebel group called the Lord’s Resistance Army. In the last 20 years, over 40,000 children have been abducted, half a million people displaced, and still the war rages on. In order to address some of the effects that have arisen out of the last two decades of conflict, there are various nongovernmental organizations in northern Uganda that are employing diverse methods and mechanisms in their rehabilitation/reintegration/community-building programs – and in these programs, theatre and performance have come to play an important role. My thesis explores this “theatre of war” as it has come into being in northern Uganda as well as considers how political playwriting techniques can be employed in order to address this war from the outside. (Research supported by a Schiff Fellowship.)

**Multicultural Research**

**Faith in Action and Interaction (interactive teaching)**

*Pendleton West 212*

*Colleen Hibbert ’07, Cognitive and Linguistic Sciences, Rebecca Kapler ’06, American Studies, and Prema Polit ’06, English*

**ADVISOR:** Sharon Elkins, Religion, and Victor Kazanjian, Dean of Religious and Spiritual Life/Peace and Justice Studies, and Pashington Obeng, Africana Studies

From its inception in 1992, the Multi-Faith Council at Wellesley College was a model for inter-religious dialogue that inspired similar programs throughout the country. Originally comprised solely of Christians, Jews, and Muslims, the Multi-Faith Council evolved into a highly diversified group including members from many of the religions represented at Wellesley. Our work on the Multi-Faith Council has inspired us to share our experiences of growth, challenges, and personal connections in a short video. This film documents Wellesley’s multi-faith model through individual interviews with members of the Multi-Faith Council and portions of our Wednesday meeting discussions. We wish to consider especially the power of friendships to create a respectful yet inquisitive space for honest discussion. A second phase of our presentation is to explore reactions and questions about the content of the film through the use of the World Café model, a tool to support reflective dialogue. (Funding provided by the Office of Religious and Spiritual Life.)
Basic Science towards Clinical Ends (short talks) Science Center 278

Progress towards the Preparation of a Vancomycin Derivative Containing a Septanose Residue at the Vancosamine Position
Meghan Fennell Hogan ’06, Biological Chemistry
Advisors: Nicole Snyder Lee, Chemistry

The glycopeptide antibiotic vancomycin (A), once considered the antibiotic of last resort, has seen the development of many strains of resistant bacteria over the past twenty years. Several attempts to overcome this resistance have focused on functionalizing the amino group of a peripheral carbohydrate component of vancomycin, known as the vancosamine sugar. Here, we present recent progress towards the development of an entirely new derivative of vancomycin that incorporates a septanose residue at the vancosamine position (B). The septanose residue is the result of a formal one carbon homologation of the natural vancosamine sugar. Vancomycin derivative B shows promise as a potential analog that can be used combat vancomycin resistant strains of bacteria. (Research supported by a Wellesley College Faculty Award.)

A Volumetric Comparison of Different Brain Regions in a Rett Syndrome Mouse Model
Heather L. Bowling ’06, Neuroscience
Advisors: Joanne Berger-Sweeney, Neuroscience, Biological Sciences, and Office of Dean of the College

Rett Syndrome (RTT) is a neurodevelopmental disorder associated with mental retardation in females. It is characterized by normal development from birth to six months, when motor and cognitive skills plateau and eventually decline. RTT is due to mutations in the X-linked gene that encodes a transcriptional repressor protein. Brain volumes in RTT are 30% smaller than normal. These data and behavioral research led us to hypothesize that in RTT there are selective decreases in brain regions involved in cognitive and motor skills. We tested this hypothesis in brains of a mouse model of RTT. Indeed, we found decreases in whole brain volume, as well as in regions associated with motor (the striatum), memory (the hippocampus), and anxiety (the amygdala) functions. These studies provide insights into the relationship between brain structure and function in this developmental disorder, as well as in normal humans. (Research supported by Virginia Fiske Fund and Robert and Karl Staley Fund.)

A Novel Monoclonal Antibody and Its Implications in Pancreatic Cancer Therapy
Boryana Mihaylova ’06, Biological Chemistry and Emily Glynn ’06, Biological Sciences
Advisors: Andrew C. Webb, Biological Sciences

In this project we are trying to determine the pharmacokinetics of a novel monoclonal antibody believed to recognize a surface protein expressed on pancreatic cancer cells. Since previous observations have shown that the antibody target protein is preferentially internalized in cancerous tissue of the colon, we intend to map the accumulation site, timeline, and genetic impact of the internalization process in both pancreatic and colon cell lines. Based on the accumulated knowledge, we will investigate novel ways of destroying malignant cell populations. (Research supported by Virginia Fiske Fund and Robert and Karl Staley Fund.)

Bacteria: For and Against? (short talks) Science Center 396

Prancing Proteins and Morphing Models: Computational Modeling of Bacterial Cyclic Nucleotide Gated Ion Channels
Alissa Rose Cohen ’06, Biological Chemistry and Li Xiong ’08, Biological Chemistry
Advisors: Donald E. Elmore, Chemistry

The crystal structure of the mechanosensitive channel of small conductance (MscS) from E. coli represents a unique channel structure with intriguing heptameric symmetry and significant soluble domains. There are several families of membrane proteins related to MscS channels, including a recently identified family of ion channels, the bCNG channels, putatively gated by cyclic nucleotides. In this study, we performed pair-wise multiple sequence alignments to evaluate sequence conservation within the bCNG family. Using the MODELLER program, we have produced homology models of the cyclic nucleotide binding domains of the channels and...
Translocation of the Antimicrobial Peptide Buforin II across Lipid Bilayers

Rachel B. Nelson ’06, Biological Chemistry

ADVISOR: Donald E. Elmore, Chemistry

Cationic antimicrobial peptides are important players in the innate immune response of organisms from bacteria to insects to humans. These peptides are active against a broad range of microorganisms, exhibit fast response times to infection, and rarely select for resistant bacterial strains. Over 500 such peptides have been isolated and fall into four structural groups. Buforin II is a 21-amino acid peptide belonging to the amphipathic, α-helical group, which includes the well-characterized peptide magainin 2. Currently, it is believed that buforin exhibits its antimicrobial activity by translocating across cell membranes and binding to DNA, thereby interfering with intracellular processes and leading to cell death. In order to further understand buforin’s mechanism of action, we are developing vesicle assays to study the chemical properties necessary for translocation of buforin and its analogues across lipid bilayers. (Research supported by the Office of the Dean of the College and the Robert and Karl Staley Fund.)

Battling Bacteria through DNA Binding

Erika Uyterhoeven ’08, Biological Chemistry and Nancy Sandoval ’08, French Cultural Studies

ADVISOR: Donald E. Elmore, Chemistry

In the ever growing battle of mankind versus disease comes an ancient solution that may tip the scale for future generations: antimicrobial peptides. Antimicrobial peptides are instrumental in many plant and animal systems for the prevention of diseases as bacteria and viruses generally have not developed immunity to these special proteins. Buforin II is an example of one of these antimicrobial peptides found in Asian toads. The goal of our research is to investigate how Buforin II interacts with DNA and whether these interactions are related to its potency against bacteria. We will discuss how this research project changed our perception of biochemistry as well as its application to the real world. (Research supported by the Wellesley College Mentoring in Sciences Program [Bellsouth] and the Office of the Dean of the College.)

The Planet that Lost Weight and Other Astronomical Anecdotes

(Panel) Science Center 277

Jennifer Carne ’08, Economics, Eylul Dogruel ’07, Computer Science, Christin Ho ’08, Political Science and East Asian Studies, Sarah Maynard ’08, Katie Scorza ’07, History, Talia Sepersky ’08, Astrophysics, Alessandra Springmann ’07, Astrophysics, Cody Squire ’08, Astrophysics, and Amanda Zangari ’08, Astrophysics and Mathematics

ADVISOR: Stephen Slivan, Astronomy

Part of the requirement for completing ASTR 206: Basic Astronomical Techniques is the planning and carrying out of a research project using the Wellesley Whitin Observatory 24-in. Sawyer Telescope. These are the stories of the students who took on this task in 2005 by creating color-magnitude diagrams of globular clusters, determining the periods of variable stars, and finding the mass of a planet through observations of its moons (and then trying to figure out why Uranus seemed to have mysteriously lost weight). Come learn the stories these apprentice explorers have to tell of withstanding cloudy observing runs, battling belligerent computers, and the exhilarating rush at achieving a final result. Realize the wonders that await you in ASTR 206.

Watery Worlds: Looking at Oceans and Lakes

(short talks) Pendleton West 116

Predicting the Long-term Behavior of Crude Oils in the Coastal Marine Environment through Compositional Analysis of the Sediments

Naomi Wells ’07, Environmental Studies

ADVISOR: Daniel Brabander, Geosciences

The long-term impact and transport of oil spills in the coastal marine environment is only beginning to be quantitatively understood. Recent studies are examining the transport and fate of spill-derived petroleum hydrocarbons after they undergo sedimentation. Initial findings suggest long residence times for pollutants in the sedimentological record. With growing knowledge of the long-term behavior of petroleum in the marine environment, it is now possible to take the next step in understanding the dynamics of spill hydrocarbon/sediment interactions by systematically examining the relationship between sediment type and long-term total petroleum hydrocarbon sedimentation. Chemical, mineralogical, density, and redox conditions of the sediments will be analyzed, with particular attention paid to clay mineralogy. The information gleaned from this study will have important implications for understanding the fate of spill petroleum in this type of environment, potentially providing a means of biogeochemically fingerprinting historic spills as well as contributing towards a predictive model of long-term fate of oil spills in the sediment record.
Uprooting Lake Waban: The Bioaccumulation of Heavy Metals
Debra Hausladen '09 and Erin Ryan '09
Advisor: Marcy Thomas, Biological Sciences

Heavy metals, such as lead, arsenic, and zinc, are dangerous not only to human life but also to wetland environments. The production of dry paint pigments near Lake Waban led to dangerously high concentrations of heavy metals that warranted remediation in 2003. By looking at the movement of contaminants within the environment, this study assessed the effectiveness of the remediation attempt. Different species of wetland plants from sites at the inflow and the outflow were tested using 109Cadmium Niton technology. Samples taken from the outflow showed higher levels of lead and arsenic than those from the inflow, indicating that the remediation probably occurred too late to fully contain the movement of these heavy metals.

Finding Your Power: A Workshop with Girls’ LEAP Self-defense (interactive teaching) Pendleton West 220
Laura van der Pol '07, Environmental Studies
Advisor: Deborah Weaver, Center for Work and Service

You are always stronger than you will let yourself believe. Remembering this is Rule #1 in self-defense. Learning to keep yourself safe is much more than knowing a complicated kick combination or a knock-out punch. Rather, self-defense begins most appropriately with the “self.” Defining your boundaries for what’s OK and not OK, asserting your voice, being aware of your internal dialogue – these skills are just as important as the physical skills for protecting your Self. This workshop is an introduction to the Girls’ LEAP curriculum. LEAP is a nonprofit organization dedicated to empowering young girls and women by developing the essential needed physical and mental skills to keep themselves safe. Come to this workshop to experience first-hand the physical and verbal tools we use to help girls express their power.

Igneous Path: Copper Plate Prints and Photo Essay (exhibition) Jewett Student Gallery
Beth K. Pfeiffer, postbaccalaureate student, Studio Art
Advisor: Phyllis McGibbon, Art

My project began with the Italian phrase, circolo virtuoso: that the gift given will find its way back, in full circle, to nourish the giver. The notion of a continuous path that enlarges and extends an initial act of generosity is a deep personal belief and I wanted this to be the foundation of my independent study in printmaking. Nature acts as my most replenishing circolo virtuoso and on the coast of Maine I encountered an orange vein of igneous rock within dark grey-black stone. I began with a photo essay of this igneous path, and then explored the imagery further through a trio of abstract etchings, using multiple copper plates, aquatint, color inks, and chine colle. In addition to the final prints, I will display working proofs, so that viewers may trace my path through the etching and printing process.

The Hip-Hop Speaks: Critiquing Cultural Uses of Hip-Hop Culture in the Socialization of Black Youth (panel) Pendleton East 239
Surayyah T. Hasan ’06, Psychology, Natalie Maddox ’06, Political Science and Africana Studies, and Nicole Maddox ’06, Africana Studies
Advisor: LaTrese Evette Adkins, Africana Studies

Several Africana Studies majors and minors attended a national conference on Black Studies at Michigan State University (MSU), a Research 1 institution, in April 2006. The seniors who provided campus leadership for the MSU panel on the same topic, “The Hip-Hop Speaks,” will share practical advice from the planning and preparations of their scholarship for academic audiences. Focusing on the idea of “legacy education,” these representatives of the youngest generation of Black Studies scholars have a message for first years and sophomores who have not declared their major(s)/minor fields of study. Specifically, these Africana Studies seniors offer cumulative reflections about the societal relevance of intellectualized, Black experiences and how this knowledge can facilitate a dynamic, liberal arts education. (Research supported by the Office of the Dean of the College, the Committee on Educational Research and Development, and the Office of Equal Opportunity.)
Economic Issues

Boom or Bust: Global Economics (short talks) Pendleton West 116

Minimum Wages in Eastern and Central Europe: Effects on Employment and Inequality
Dubravka Colic ’06, Economics
Advisor: Phillip B. Levine, Economics

As the communist governments of Eastern and Central Europe relinquished power in the early 1990s, most countries in the region departed from a common set of generous social protections, which included relatively high minimum wages. In the decade that followed, minimum wage policies in these countries evolved along very different paths – strengthening in some countries, and rapidly deteriorating in others to the point that all aspect of protection has been lost. Today, minimum wage levels in the region vary from $600 per month in Slovenia to $10 or $20 per month in countries of the former Soviet Union. This project takes advantage of the variation of minimum wage levels in Eastern and Central Europe to explore how different minimum wage policies in countries of the region have affected labor market outcomes – specifically differences in employment levels and the distribution of earnings. (Research supported by a Jerome A. Schiff Fellowship.)

The Effects of IMF vs. non-IMF Fiscal Adjustments in Developing Countries
Duyer Gunn ’06, Economics
Advisor: Akila Weerapana, Economics

Even though many developing countries rely on the intervention of the International Monetary Fund (IMF) during a balance of payments crisis, the IMF is often widely criticized for the effects of its programs on the poor. This research examines whether fiscal adjustments implemented in conjunction with an IMF program do in fact protect the poor as the IMF claims. By comparing the impact of fiscal adjustments implemented under IMF programs with fiscal adjustments that are conducted outside IMF programs, in terms of their effects on social welfare issues such as poverty, health and education, I will be able to provide evidence supporting or refuting the notion that IMF programs have negative effects on the poor. The results of this study will also be helpful in addressing a more general research question: whether the finding for OECD countries that fiscal contractions can potentially have expansionary effects extends to developing countries.

Determinants of Enterprise Performance in Russia
Marina Turlakova ’06, Economics
Advisor: Akila Weerapana, Economics

In the last five years, Russian enterprise performance has improved hand-in-hand with the growing economy, but the question as to what has driven this performance remains an open one. Is the improved performance of enterprises during the oil boom a result of good policies in the form of economic reforms, or just a result of good luck in the form of high oil prices? Using an enterprise survey conducted by the European Bank for Reconstruction and Development and the World Bank, I analyze whether economic policies have had a significant impact on performance of Russian companies during the current oil boom. Understanding whether the improved economic performance is a result of good policy or of good luck is important for determining whether the Russian economy is diverse and robust enough to sustain its current positive growth trends. (Research supported by a Schiff Fellowship.)

Capturing the Gains from Trade: Lessons from Spain’s Accession into the European Community
Adrienne Hathaway ’06, International Relations and Spanish
Advisor: Akila Weerapana, Economics

Spain has undergone tremendous economic and political transformations over the last fifty years. Accession into the European Community in 1986 represents one of the key junctures in Spain’s process of economic transformation that began in 1959. Of the many adjustments associated with the liberalization and restructuring of the economy following accession, some of the most significant changes occurred in the area of trade policy. Using a gravity model, I explore the effects of Spain’s trade liberalization program upon its bilateral and sectoral trade patterns. The results will help better our understanding of what lies in store for the ten East European countries that are joining the European Union. (Research supported by the Lois Pattison deMenil ’60 Research Fellowship for European Study and a Schiff Fellowship.)

Literature and the Arts

Asian-American Literature (panel) Pendleton East 339

Nan Chen ’08, Victoria Charoonratana ’09, Lauren R. Gibbs ’06, American Studies, Leslie J. Kim ’06, English, and Courtney C. Stepien ’08, Biological Sciences
Advisor: Yoon Sun Lee, English

What is Asian-American literature, and why is it an essential component of the American canon? Our reading of excerpts from works of Asian-American fiction and our original papers developed in ENG 269: Asian-American Literature will attempt to address these questions. We will examine themes such as silence and voice, the “American Dream,” and the idea of home in Wild Meat and the Bully Burgers by Lois Ann Yamanaka, Native Speaker by Chang Rae Lee, and other novels. Our panel will explore the connections between these works as they relate to one another, to the genre of Asian-American literature, and to other American literature. We hope that this discussion will help to illustrate the definition and contemporary relevance of Asian-American literature.
Living Books: Spending Time in the Book Arts Lab (interactive teaching) Clapp Book Arts

Becky Levine ’07, English, Alexandra Courcoulas ’08, Art History, Jenny E. Kim ’06, English, and Rachel Flynn ’06, Jewish Studies

ADVISOR: Ruth Rogers, Special Collections Librarian and Katherine McCanless Ruffin, Book Arts Program Director

In the twenty-first century, the book is still a form that engages us in meaningful ways. In ARTS 107, we have probed type and layout to create our own broadsides and limited edition books. Studying the Clapp Library’s Special Collections spanning the history of the book, from the beginning of writing to the work of contemporary artists, we have explored the implications of change and convention in book arts over time. Join us in the Book Arts Lab to follow the process and historical landscape of book-making, and to print your own letterpress keepsake.

Beautiful Bare Bones: An Exhibit of Drawings of the Human Skeleton by Students in ARTS 217 (exhibition) Jewett Student Gallery

Katherine Ames Ackerman ’08, Taline Sonya Boghosian ’06, Art Studio and Art History, Adrienne Zoe Borders ’09, Alison Carney ’07, Peace and Justice Studies, Tiffany Shi Ying Chew ’08, East Asian Studies, Caitlin M. Harrington ’06, Spanish and Political Science, Leilani Venus Jambor ’08, Kathy Mu ’08, Amara Jane Chinelo Nwusu ’08, Economics, Anya Ravitz ’08, Stephanie Mae Rounds ’07, Architecture, Alexandra Yasmina Roy ’08, Art History, Corianna O’Shaughnessy Snedecor ’09, Emily Yi-Tzu Wu ’06, Art Studio, and Alyse Yichi Zhang ’06, Economics and Chinese Studies

ADVISOR: Bunty Harvey, Art

During a semester of drawing from the nude figure, students in ARTS 217 also worked for six weeks on an investigation of the human skeleton. The resulting drawings, in a variety of media, explore the body’s armature and its expressive potential. There are specific class assignments based on direct observation as well as independent projects from each student.

Hurricanes, Heroines, Heinous Harlotry, and Hilarity (long performance) Alumnae Hall

Megan Teckman ’07, Studio Art, J. Rachel Anderson ’07, Theatre Studies, Christiana Moltrem ’06, Theatre Studies and American Studies, Nandita Dinesh ’06, Theatre Studies and Economics, and Bethany Winkels ’06, Theatre Studies and Philosophy

ADVISOR: Nora Hussey, Theatre Studies

Now a Ruhlman tradition, Wellesley College theater students will present scenes, stories, and songs from the 2005-2006 season. Through the collaboration of numerous student directors and Lois Roach and Nora Hussey, the lively art of theater will spring to life on the Jewett stage. From Louisiana to ancient Greece, the drama will radiate and reverberate.

National Binds: Repression, Compassion, and the Flag (short talks) Science Center 396

Vexill-what! Using Vexillology to Understand National Identity

Rebecca Albert ’06, International Relations

ADVISOR: Frances Malino, Jewish Studies/History

Vexillology, the study of flags, can be a useful tool to approach the study of national identities. Societies have assigned flags important roles in forming national identity. Flags serve as reminders of collective unity, as representations of a country’s past, present, and future, and as cultural and political symbols. Twentieth-century examples of Germany, Russia, and Northern Ireland will be used to illustrate the challenges of constructing national flags and national identities that are acceptable to both governments and citizens.

Sarvodaya: How Spirituality Influences a Development Movement

Stephanie Landers ’07, Political Science

ADVISOR: Christopher Candland, Political Science

Sri Lanka’s Sarvodaya movement has worked toward development in social, ethical, cultural, spiritual, and economic areas for fifty years. Its long-term success is partly due to its foundations in Buddhist and Gandhian philosophy, an emphasis on spirituality that is becoming increasingly accepted in the community development field. With an entirely volunteer-based network covering 15,000 villages, Sarvodaya has made significant achievements in peacemaking and community building. Now that spirituality is garnering attention as a positive force in such efforts, Sarvodaya is an even more fitting international role model to study.

Memory and the Body as Political Entities

Lily Balloffet ’06, Latin American Studies and Spanish and Rebeca Tezaguic ’06, Psychology and Latin American Studies

ADVISOR: Marjorie Agosin, Spanish

Inspired by themes in our SPAN 327 seminar, our final research projects related to topics of reconstruction of cultural memory after repressive political regimes. We wish to further explore this concept, focusing on case studies from Argentina, El Salvador, Guatemala and other Latin American countries with violent counter-insurgency political agendas. We will examine diverse movements concerned with preserving the memory of those who were tortured, disappeared, or assassinated during these periods in history, including truth commissions, literary movements, and individual projects. These combined efforts work to restore national memory, recreating the images of victims of state terror as human beings.
1:30 – 2:40

Science and Technology

Models: Not All Science Is Wet (short talks) Science Center 278

Expected Properties and Experimental Signals of Bose Einstein Condensed Atoms
Mona Ali ’06, Physics
Advisor: Courtney Lannert, Physics
We have conducted a theoretical study of the response of Bose Einstein Condensed (BEC) atoms in a double slit experiment. We have predicted the interference patterns that are expected to form on the screen, which provide evidence for the wave nature of these atoms in quantum theory. We contrasted these interference patterns with those from atoms in the uncondensed phase, or thermal atoms. This gives an experimental signature of the presence of BEC atoms in the system, which distinguishes them from atoms in the uncondensed phase. We also compared the patterns from condensed atoms with varying levels of interatomic interactions. This also provides information about the effect of the strength of inter-atomic interactions on the BEC cloud. (Research supported by Research Corporation, Howard Hughes Medical Institute, and a Schiff Fellowship.)

Can Quantum Mechanical Calculations Be Used to Predict Potential Lasing Efficiency of Ultraviolet Laser Dyes?
Kathryn Matthews ’08, Chemistry
Advisor: William F. Coleman, Chemistry
We have performed a number of quantum mechanical calculations in an attempt to relate the lasing efficiency of a series of organic dyes to geometric changes between the ground and first excited states. Using Density Functional Theory and the variational wavefunction Monte Carlo method, we have explored the structural change involving the degree of rotational distortion about carbon-carbon double bonds, as we expect that this distortion is the major contributor to the lasing behavior. In a series of model compounds we have demonstrated good agreement between theory and experiment and are confident that the methods we are using are transferable to systems where no experimental data on the excited state geometry exists.

Searching for Quantum Mechanical Explanations for Non-Planar Carbonyl Moeities
Claire Reddy ’09
Advisor: William F. Coleman, Chemistry
Conventional chemical wisdom holds that the four atoms making up a carbonyl functional region should all lie in the same plane in order to maximize the strength of the carbon-oxygen double bond. Yet there are many exceptions to this “rule” that are rarely discussed in organic chemistry texts. We are using quantum mechanical calculations to develop tools to enable one to predict whether a particular carbonyl region will be planar or not. Using Density Functional Theory and molecular mechanics calculations we are developing methods separating the magnitudes of the steric effects, which favor distortion from planarity, and the pi-bonding interaction, which favors planarity.

Explaining the Digital Divide: Topics and Issues from the Rise in New Computer Technology in Education (panel) Pendleton East 239

Aysha Gregory ’09, Political Science,
Kendall LaSane ’09, Anthropology,
Mascharney Franklin ’09, Political Science,
and Dorothy Brown ’09, Economics
Advisor: Pattie Orr, Computer Science/Information Services
Students from the 2005 Pathways Program will present research and statistical data on the “Digital Divide” via basic Web pages from their CS 100 student portfolios. The “Digital Divide” is an expression to describe the increasing gap in access to and use of computers in the American education system. During the two-and-a-half week program, students learned how to use the Internet as a research tool, create animated graphics, build Web pages and use critical thinking and writing skills to create a final product – their own Web page. Pathways students researched the problems associated with the use of technology, particularly in an educational setting, and derived solutions about the future of technological education in the United States. The four presenters will discuss the following topics: using the medium as an effective tool, creating a possible solution to the lack of computers, using computers effectively in classrooms, and fostering creativity with computer technology.
Channels and Proteins

(post poster session) Science Center Focus

**Substitution of a Thioamide Functional Group in a Model Beta-Sheet Peptide Structure**

*Margaret Blattner ’07, Neuroscience and English*  
**Advisor:** Julia H. Miwa, Chemistry

Much recent medical research has been concentrated on the role of protein folding in disease progression. Many forces in proteins contribute to their final structure, including hydrogen bonding. A thioamide functional group was used to look more closely at hydrogen bonding within the beta–sheet secondary structure of a peptide. Making small changes at the molecular level will provide increased understanding of how the thioamide linkage affects the overall protein structure. This information will assist in our understanding of the role of the hydrogen bond and will provide a better understanding about the biophysics of the thioamide functional group. (Research supported by NSF-REU [Research Experience for Undergraduates].)

**An Enzyme’s Search for the Perfect Dancing Partner: It’s Good to Be Flexible!**

*Gabriela Hayes ’07, Biological Chemistry and Michelle Song ’08*  
**Advisor:** Adele Wolfson, Chemistry and Office of Dean of the College

Thimet oligopeptidase (TOP) is a soluble metalloendopeptidase that has been isolated in a variety of cell types, such as the brain, pituitary, and testis tissue. TOP metabolizes a variety of bioactive peptides and is implicated in the regulation of several physiological processes, including blood pressure control, reproduction, and the immune response. Results from several laboratories, including our own, suggest that TOP can metabolize an unusually wide range of substrates due to flexibility conferred by glycine residues present in the binding pocket. In our study, we have conducted experiments using mutant forms of TOP with two substrates of different size in order to specifically study the role of the binding site’s flexibility in accepting such a wide range of substrates. (Research supported by the Brachman Hoffman Fund and the Howard Hughes Medical Institute.)

**Prancing Proteins and Morphing Models: Computational Modeling of Bacterial Cyclic Nucleotide Gated Ion Channels**

*Alissa Rose Cohen ’06, Biological Chemistry and Li Xiong ’08, Biological Chemistry*  
**Advisor:** Donald E. Elmore, Chemistry

The crystal structure of the mechanosensitive channel of small conductance (MscS) from *E. coli* represents a unique channel structure with intriguing heptameric symmetry and significant soluble domains. There are several families of membrane proteins related to MscS channels, including a recently identified family of ion channels, the bCNG channels, putatively gated by cyclic nucleotides. In this study, we performed pair-wise multiple sequence alignments to evaluate sequence conservation within the bCNG family. Using the MODELLER program, we have produced homology models of the cyclic nucleotide binding domains of the channels and verified them using a variety of protein structure verification methods. We have begun to refine these models using molecular dynamics simulations. These simulations can also give us insight into the role these domains play in channel function. Overall, these models will play a critical role in developing experiments to characterize the structure-function relationships of these channels. (Research supported by the Science Reserve Fund and the Wellesley College Mentoring in Sciences Program [Bellsouth].)

**Blue-Green Like Me**

(post poster session) Science Center Focus

**Proteomic Analysis of the Expression of Stationary Phase Acid Stress Proteins of Cyanobacterium Synechocystis sp. strain PCC 6803 at pH 6.2**

*Maua Herme ’06 Biological Sciences, Advisor: Mary M. Allen, Biological Sciences*

The unicellular cyanobacterium *Synechocystis* sp. strain PCC 6803 is an aquatic and photosynthetic microorganism that is a good model organism for physiological and biochemical studies due to the availability of its complete genome sequence. *Synechocystis* responds to different cues from its environment that affect expression of genes and synthesis of proteins related to different environmental stresses. The acid stress response of *Synechocystis* is being used to understand survival mechanisms in these cells. In this study, stationary-phase proteins produced as a result of acid stress at pH 6.2 were characterized through growth studies, viability studies, and proteomic analyses. The up-regulation or down-regulation of genes encoding acid-stress proteins will provide a good indication of the important roles the proteins play in the maintenance of DNA, transcription, translation, biosynthesis of amino acids, regulation of key pathways, photosynthesis, respiration and other crucial pathways, thus increasing the knowledge regarding the acid stress response of *Synechocystis*. (Research supported by Wellesley College, the National Institutes of Health and the Howard Hughes Medical Institute.)
Does the Cyanobacterium *Synechocystis* sp. strain PCC 6803 Form a Biofilm?

Valeria M. Riguero ’06, Biological Sciences  and Charlene C. Chong ’08, Biological Sciences and Spanish  
Advisor: Mary M. Allen, Biological Sciences

Cyanobacteria are ancient prokaryotic organisms that have been able to adapt to stressful environments. In times of stress it is possible that some cyanobacteria form biofilms in order to maximize survival. A biofilm is a community of organisms living together on a biotic or abiotic surface, encased in an exopolysaccharide matrix. The cyanobacterial strain *Synechocystis* sp. strain PCC 6803 is an example of a strain that may form a biofilm. Bacteria that form many biofilms are motile, and type IV pili are necessary for motility of *Synechocystis* 6803. In order to determine if biofilms could be induced in strain 6803, plates made with BG-11 medium were used to see if phototaxis, the movement towards light, would occur in the presence of a unidirectional light source. Cyanobacteria were also acid stressed to see if there would be aggregation along the side of the culture flasks to escape acid stress.  
(Research supported by the Howard Hughes Medical Institute.)

The Regulation of Nitrate Reductase in Cyanobacteria

Deborah Park ’06, Biological Chemistry  and Christina K. Chae ’06, Neuroscience  
Advisor: Mary M. Allen, Biological Sciences and Adele Wolfson, Chemistry and Office of the Dean of the College

“Blue-green algae” is the common name for the ancient prokaryotes, cyanobacteria. These unicellular creatures are unique in their ability to adjust to stressful conditions. The present project seeks to gain understanding of cyanobacterial nitrogen metabolism, concentrating on the role of the enzyme nitrate reductase (Nar). Nar is involved in the reduction of nitrate to nitrite. Nitrite reductase (Nir) then reduces nitrite to ammonium. Ammonium is the only form of nitrogen that can be incorporated into cyanobacterial carbon skeletons. It also has a global repressive effect on other nitrogen assimilation pathways, such as the nitrate and urea assimilation pathways. A study investigating the effect of urea on Nar activity within the cell was undertaken. This study also investigated the actual amount of ammonium that builds up within the cells while growing in a variety of nitrogen sources.

Use of $^{31}$P and $^{23}$Na NMR Spectroscopy to Characterize pH Homeostasis in *Synechocystis* sp. strain PCC 6803

Michelle Nguyen ’07, Biological Chemistry and French and Ashmita Banerjee ’08, Biological Chemistry  
Advisor: Mary M. Allen, Biological Sciences and Nancy H. Kolodny, Chemistry

Under conditions of acid stress, cyanobacteria are able to maintain their internal pH at neutral levels as well as to raise the external pH to tolerable levels. Using $^{31}$P NMR spectroscopy, we generated inorganic phosphate ($P_i$) titration curves, providing a method to use the chemical shift of $P_i$ to determine intracellular pH. The intracellular pH data obtained via $^{31}$P spectroscopy have confirmed the ability of *Synechocystis* sp. strain PCC 6803 both to maintain internal pH and to neutralize external pH. Using $^{23}$Na NMR spectroscopy, we will see whether this occurs in part due to a sodium-proton antiporter; current work has been focused on finding an appropriate buffer to use with our shift reagent, which distinguishes the intracellular and extracellular [Na$^+$] in the cell environment. We will then repeat the experiments using larger NMR tubes in order to have a more viable environment for the cells.  
(Research supported by the Howard Hughes Medical Institute.)

Poetry into Song: D.G. Rossetti’s Sonnets Set to Music (interactive teaching) Pendleton West 212

Joanna Swafford ’06, English and Music  
Advisor: Alison Hickey, English

Have you ever wondered how a song’s text relates to its music? In my presentation, based on my honors thesis, I will discuss six sonnets by the English pre-Raphaelite poet Dante Gabriel Rossetti alongside musical settings of these poems by the composer Ralph Vaughan Williams. I will point out how Vaughan Williams brings out the meaning and subtlety of Rossetti’s text through word painting and harmonic and melodic choices. Because Rossetti was both a painter and a poet, looking at some of his better known works will show how his “painter’s eye” influences his poetry and, in turn, Vaughan Williams’s musical settings. I will play excerpts of the songs both from a recording and on the keyboard to demonstrate the relationship between words and music in greater depth.
Three Authors from the British Isles (short talks) Pendleton East 339

My Name Is Paula Spencer: The Voice of the Other in Roddy Doyle’s Novels
Kara Lee Donnelly ’06, English and French
Advisors: Margery Sabin, English

In The Woman Who Walked into Doors, Irish novelist Roddy Doyle assumes the voice of Paula Spencer, a woman strikingly different from himself. Paula is a woman, a widow, a mother, and an alcoholic. She cleans houses for a living and struggles to keep her family afloat. She is also the victim of prolonged domestic abuse, in her words, “seventeen years of being hit and kicked.” Doyle writes from Paula’s point of view, creating an arresting and convincing voice for this woman who differs so greatly from himself. But what right does he have to do this? Is Doyle’s choice to speak for Paula damaging to similarly disadvantaged women? Or would it be morally wrong for Doyle not to address these vital issues that his society has been trying to ignore?

The Same Subject Diverted: The Derationalization of William Hazlitt
Erica I. dela Cruz ’06, English
Advisors: Alison Hickey, English

At the height of his career, William Hazlitt was the most renowned and controversial periodical critic of the Romantic era. Yet John Keats, a distant admirer, once observed: “I know he thinks himself not estimated by ten people in the world. I wish he knew he is.” A bold and uncompromising social commentator, Hazlitt made powerful enemies of many of his contemporaries – most famously the poet Wordsworth and Coleridge—for voicing his grave disappointment at their abandonment of their radical roots. Underlying the prolific essayist’s stinging criticisms was a yearning for acceptance and lasting fame which often strongly opposed his devotion to integrity and the search for truth. My thesis explores the ways in which Hazlitt expresses his attempt to reconcile a desperate need to find “a heart to speak to” while maintaining his most cherished principle: that of being true to oneself.

Minor Characters in Major Roles: The Many Layers of Tom Stoppard
Meg Tirrell ’06, English
Advisors: William Cain, English

Tom Stoppard’s 1967 Rosencrantz and Guildenstern Are Dead forever changed the way we consider Hamlet. Stoppard’s in-depth look at two characters on the fringes of Shakespeare’s masterpiece poses questions about identity, fate, and the nature of life and death onstage. We plunge into the endless layers of this play-within-a-play and emerge laughing in spite of the dark issues Rosencrantz and Guildenstern explores. Stoppard does it again with his 1975 Travesties, a play that incorporates James Joyce, Lenin, and Dadaist Tristan Tzara into Wilde’s The Importance of Being Earnest. With his mind-boggling structure and reliance on history and well-known literature, Stoppard has a style all his own that nonetheless exemplifies modern British drama. My presentation will compare Rosencrantz and Guildenstern with Hamlet and Travesties with The Importance of Being Earnest to delve into themes of identity and fatalism, and to answer some of the key questions Stoppard poses about both.


Aubre Carrein Aguilera ’08, Music and Latin American Studies, Rebecca Ampornsa ’09, Architecture and Spanish, Tara Augustein ’08, Music and Psychology, Michelle Bourgeois ’09, Rachel Buglione-Corbett ’07, Biological Chemistry, Ashley Coale ’07, Ashley Hanks ’06, Economics, Natalie Harrington ’09, Comparative Literature, Julia Harte ’09, International Relations and History, Joana Kang ’08, Art History, Jennifer Kanzenendorf ’06, Music, Elizabeth Merrill ’09, Christiana Molldrem ’06, Theatre Studies and American Studies, Dana Montalto ’09, Political Science, Nayantara Mukherji ’06, International Relations, Leslie G. Oesterich ’06, Music and Biological Chemistry, Isabelle Plaster, faculty, Rachel Reeds ’06, Mathematics and Music, Karen Sauer, faculty, Simone Seol ’08, Religion, Christina Tognoni ’09, Neuroscience and Spanish, and Mark Adamo, guest composer
Advisors: Isabelle Plaster, Music, Aaron Sheehan, Music, and Andrea Matthews, Music

The performer’s life can be a lonely one, even at Wellesley, so the opportunity to join with instrumental and vocal colleagues often creates a special kind of camaraderie and joy. This concert showcases student performances of works by Mozart, Dominick Argento, Gordon Jacobs, Frank Martin, Ralph Vaughan Williams and others, including the final scene from the recent opera, Little Women, by Mark Adamo.

Stories and Poems from America and Beyond (literary reading) Lulu Chow Wang Campus Center 413

The Adventures of Katherine and Gus: Readings of Two Children’s Picture Books
Marion Ballas ’06, English and Catherine E. Walton ’06, English
Advisors: Susan Meyer, English

Fostering an interest in literature at a young age contributes to the development of a child’s intellectual curiosity. Whether didactic or imaginative, stories shape the way children interact with their peers within their ever-expanding worlds. Children appreciate stories for their lessons and entertainment and find comfort in fantasy worlds as well as in those they are able to relate to directly. In an independent study, we sought to further understand the children’s narrative and those components that are necessary to succeed in attempting to write and
ADVISOR: Kate Broad '06, English and Political

Cities of the Living, Cities of the Dead
Kate Broad '06, English and Political

ADVISOR: Frank Bidart, English

Drawn from my experiences living in India and Brazil, this collection of original poems explores rituals and spirituality as they shape responses to mortality and the treatment of death in two different cultures. The cities of the title represent real places, but they are also metaphorical locations where the contrasting and interlocking landscapes of life and death are formed. Looking at rural and urban settings, private family spheres and public street scenes, this collection portrays the detailed nuances of family life, culture, tradition, and social upheaval, questioning how we view our own mortality and why.

“Grandma”: A Short Story
Lauren Holmes '07, English

ADVISOR: Alicia Erkan, English

A good short story is about a strange creature. In this story, the creature is Grandma. Not the grandma who gives good presents and is nicer than your parents, but the grandma who ruins everything and is rude and hurts everyone’s feelings, but who you still love out of guilt. Charlotte and her family divide their grandmother’s visits into shifts. Good shifts include sitting with her while she dozes in front of the TV or watching her read. Bad shifts include making tea and listening to her say racist things. One Christmas, Charlotte signs up for TV duty and gets more than she bargains for. After listening to insults about Mexicans, Koreans, Puerto Ricans, and lesbians, Charlotte and her little brother Jack decide to take action.

Cultural Divides around the World (short talks) Pendleton West 212

Muslims United? Uncovering Segregation among Muslims in Lleida, Spain
N’Mah Yilla ’06, Middle Eastern Studies

ADVISOR: Carlos Ramos, Spanish

Islam is understood by its followers to be a religion of faith and equality. According to the Quran, all Muslims are equal and connected to each other as part of the Ummah (world body of Muslims). In light of this concept, one would expect to see close interaction among Muslim immigrants in Europe. To test this assumption, I have studied the immigrant Muslim community in Lleida, Spain. The Muslims there are divided along cultural and ethnic lines: North African (Arab/Berber) and Sub-Saharan African (black). My study analyzes why the Muslims in Lleida are living and worshipping in communities divided along cultural-ethnic lines. I have found that different cultural backgrounds, conflicting/dissimilar approaches to theology, and the Spanish community’s social perceptions of these groups foster the lack of unity between them despite their common faith. (Research supported by the Office of Equal Opportunity, Office of the Dean of the College and Center for Work and Service.)

Inequality in Access: How Does Accessibility to Course Work Affect Standardized Testing among Minority Youth?
Shayla Adams ’08, Spanish and Urban Studies

ADVISOR: Donna M. Harris, Education

Standardized tests have long since been a means of testing students’ ability to master material against pre-established norms. Since the Brown v. Board of Education decision, educational researchers have focused on examining why minorities continually score lower than their white counterparts on these tests. Access to academic course work is important because it affects student outcomes on assessments. For students who desire to attend college, access to Advanced Placement (AP) courses is crucial to their admission. Using national data, this presentation will show findings from my examination about how high schools students are distributed in AP courses in regard to race. I focus on how the location and academic environment of the school relates to student access to these courses. I will also present the relationship between access to AP courses and student achievement by comparing samples of high students using data from national longitudinal surveys and a Wellesley College first-year student survey. (Research supported by the Sophomore Early Research Program.)

The Influence of Location on Infertility: Social Perspectives and Treatment Strategies in Senegal
Shoshana Maxwell ’06, Anthropology

ADVISOR: Anastasia Karakasidou, Anthropology

This study examines perceptions of infertility in communities of urban Dakar and rural Kédougou of Senegal. Twenty-five men and women were involved in the study and discussed with me questions regarding infertility perspectives and treatment strategies. Informants in Dakar believe women are responsible for the incidence of infertility and they indicate divorce as a social consequence of the illness. Informants in Kédougou believe either a man or a woman is responsible and they perceive infertile individuals as normal members of society. General knowledge concerning the biological or social causes of the condition was difficult to ascertain since most informants responded that infertility resulted from “the will of God.” Treatment strategies were similar in both urban and rural areas – infertile individuals consulted healers, herbalists, and biomedical practitioners. Infertility acceptance was higher in rural areas compared to urban areas, despite fewer socioeconomic opportunities and educational and health care resources.
available. (Research supported by a Schiff Fellowship.)

The Other in Hernán Cortés’s Letters: Antithesis or Reflection of the Self?
Valerie Kua ‘08, English and Spanish
Advisor: Evelina Guzauskyte, Spanish
The Other, defined through the notions of race, gender, and language, can be seen as someone distinct from either the individual or the collective Self. Defining the Other during the conquest in the Americas became a license to dominate and oppress those considered “different”. But do we not, by the very definition of antithesis, betray the presence of some shared characteristic – for how else would one be able to draw comparisons? Let us consider the possibility that investigation of the Other can, in fact, end in no less than reflection of the desires and beliefs of the Self. In my paper, I analyze how this hypothesis applies to the letters to the emperor of Spain, Carlos V, written by Spanish conquistador Hernán Cortés. I approach Cortés’s representation of his encounter with the Aztec, Mexico, and Maya tribes within the context of cultural studies and new historicism.

Political Development

Feminators: Women as Social and Political Activists
(Short talks) Pendleton East 239

The Womenators: Women in Contemporary California State Politics
Katharine Derrick ’06, Women’s Studies and Political Science
Advisor: Rosanna Hertz, Women’s Studies
This presentation will focus on trends and issues facing women in California state politics today. Women in the California State Assembly have a unique relationship with male politicians in the state, epitomized by their rocky relationship with Governor Arnold “Girlie-Men” Schwarzenegger. Focusing closely on the Assemblywoman who represents Oakland, CA (Wilma Chan, D-16), I will discuss what legislative issues the Assemblywomen deal with most often. I will also discuss strategies that women in the Assembly must take to assure passage of their bills, as well as the interactions between male and female leaders in the legislature. Looking to the future, I will also examine whether term limits affect the number of women serving in the Assembly, and whether women will ever reach full parity in the legislature?

Social Progress or Self-promotion: Analyzing the Influence of Antoinette Fouque on the French Women’s Liberation Movement
Danielle Friedland ’06, French
Advisor: Scott Gunther, French
What happens to a social cause when a fringe element suddenly claims to speak for the entire movement? The French Women’s Liberation Movement (MLF) was forced to consider this issue in the 1970s, when Antoinette Fouque (a former psychoanalyst) and her anti-feminist followers (mostly ex-patients) took advantage of tensions among the various factions of the MLF to overemphasize their involvement in a cause with which they largely disagreed. This presentation will follow the movement through the tumultuous 1970s and examine the causes and effects of the shift from an anti-establishment movement to a movement whose self-declared mouthpiece not only complied with the system, but profited from it as well.

Progressive Philanthropy and the Funding of Social Change at the Boston Women’s Fund
Eleanor Blume ’06, Sociology
Advisor: Lee Cuba, Sociology
The mechanics of social change are at once fundamental to social progress and clouded by conflicting and overlapping interests and structures. This project examines the mechanics of social change by building on the principle of praxis – how social theory is informed by action and, in turn, education by experience – as a basis for understanding social change efforts among women in progressive philanthropy. The opportunity to step back from the activity of work in a social movement and analytically evaluate how and why women engage with progressive philanthropy and political activity allows for greater understanding of how to create change. I examine the Boston Women’s Fund and related Boston-area feminist activities to explore how social class, race, gender, and identity shape – and are shaped by – women’s involvement with progressive philanthropy and social change. Ultimately, this work is the convergence of academic and political pursuits, each complementing, challenging, and advancing the other. (Supported by Pamela Daniels ’59 Fellowship.)

Brains Revealed: MRI Studies at Wellesley (Short talks) Science Center 278

Using Volumetric Magnetic Resonance Imaging (MRI) to Monitor Brain Development in a Mouse Model of Rett Syndrome
Kathy Wang ’06, Chemistry and Mehvish Mehrani ’08, Neuroscience
Advisor: Nancy H. Kolodny, Chemistry
Rett Syndrome (RTT) is a severe neurodevelopmental disorder that is a leading cause of mental retardation in young girls. MRI studies done on Rett patients have shown that the disorder causes an overall reduction in whole brain volumes. The goal of this study is to provide further information on the developmental timeframe of RTT by monitoring the progression of the disorder over time. The micro-MRI system at Wellesley College has been used to longitudinally monitor whole brain development in a mouse model of RTT during postnatal weeks three through six. Volumetric analyses have been performed, comparing brain...
Using Mn$^{2+}$ Contrast Enhancement in a Functional MRI Study of the Crayfish Sensory Systems

Jane Rodgers ’06, Neuroscience, Do-Quyen Pham ’06, Neuroscience, and Jane Shin ’09

Advisors: Nancy H. Kolodny, Chemistry

Activated-Induced Manganese Enhanced Magnetic Resonance Imaging (AIM-MRI) is a technique that is used for functional MRI studies to measure activity in the nervous system. Manganese (II) is taken up preferentially by the nervous system because, like calcium (II), it is capable of selectively entering active neurons. Manganese (II) also enhances the contrast within MR images. AIM-MRI was applied to the crayfish visual and olfactory systems. Intermolt Procambarus clarkii were imaged multiple times after a MnCl$_2$-saline intramuscular injection. Preliminary experiments demonstrated that signal intensities in the MR images plateau 40 minutes after injection, indicating that manganese accumulation within tissues was complete. Signal intensities within the accessory, olfactory, and antennary lobes in the brain in MR images were compared with and without a light or olfactory stimulus for any indication of preferential uptake by tissue due to the stimulus. This study provides the basic methods for future circadian rhythm and sensory experiments. (Research supported by the Howard Hughes Medical Institute and the Robert and Karl Staley Fund.)

Using Nuclear Magnetic Resonance Spectroscopy to Understand Brain Chemistry in Rett Syndrome

Meera Sheffrin ’06, Chemistry and Jessica Markham ’07, Chemistry

Advisors: Nancy H. Kolodny, Chemistry

Nuclear Magnetic Resonance (NMR) spectroscopy can be used to study neurologic diseases by providing quantitative information about concentrations of neurochemicals in the brain. We are using this technique to study Rett Syndrome (RTT), a neurodevelopmental disorder that affects young girls. By analyzing the ratios of neurochemicals in a mouse model of RTT we hope to develop a more complete understanding of the nature of this disorder. The goal of this research is to analyze the effects of choline supplementation on brain chemistry to determine if choline can be a possible treatment for RTT. Lactating mice were given choline in their drinking water; nursing pups thus received choline through their mother’s milk. These young mice were studied using ex vivo NMR spectroscopy to determine the effect of choline on their developing brains. Choline significantly increases the abnormally low concentration of N-acetylaspartate, an indicator of neuronal health, in RTT male mouse brains. (Research supported by a Schiff Fellowship and the Howard Hughes Medical Institute.)

The Synthesis, Characterization, and Application of MRI Contrast Agent TryGad

Naomi Shin ’06, Chemistry

Advisors: Nancy H. Kolodny, Chemistry

The noninvasive nature of magnetic resonance imaging (MRI) combined with its powerful high-resolution images account for its popularity as a clinical diagnostic tool. Recent efforts to improve MRI focus on enhancing images using chemical contrast agents. A new class of contrast agents has emerged, showing immense potential for expanding the usefulness of MRI. The synthesis and characterization of one such agent TryGad, is the goal of this project. TryGad has been designed to enhance images in the presence of tryptophan-5-hydroxylase (TPH), a regulatory enzyme in the synthesis of serotonin. The differential activation of TryGad will provide insight into serotonin production. The synthesis of this agent is monitored through a variety of techniques ranging from proton NMR to electrospray-ionization mass spectrometry (ESI). (Supported by Howard Hughes Medical Institute and the Robert and Karl Staley Fund.)

Cleanliness Is Next to Neurogenesis (poster session) Science Center Focus

Radiating Physical Attractiveness and Social Skills from a Male Stimulus to a Female Target in a Romantic Relationship

Natalia Topik ’06, Psychology and Art History, Anne Chiao ’06, Psychology, Jacy Park ’06, Psychology, and Rebeca Tezague ’06, Psychology

Advisors: R. Steven Schiavo, Psychology

Fifty-two Wellesley College students evaluated a photograph of a male and female couple. The male was manipulated to appear either physically attractive or unattractive. Participants also read a paragraph about the male describing him as possessing either high social skills or low social skills. In both the photographs and the descriptions, the female’s physical attractiveness and social skills were held constant. Results showed that both the male’s physical attractiveness and especially his social skills influenced perceptions of the female’s characteristics. However, the perceptions of the female’s social skills tended to be opposite to the males, which contradicted results found when studying the “radiation” of female characteristics to her male companion.
The Impacts of Acid Deposition: Why the Clean Air Act Amendments (CAAA) of 1990 Are Insufficient

Elizabeth Kelley ’09
Advisor: Marcy Thomas, Biological Sciences

When the air pollutants sulfur dioxide and nitrogen oxide combine with atmospheric moisture, they reenter the earth as acid deposition. This project examined the problem of acid deposition in the United States, and particularly focused on its impacts in the Adirondack region of New York. PH data from research conducted by the Adirondack Lakes Survey Corporation was compared with PH data that was measured in October, 2005 after a heavy rainstorm. The results show an example of episodic acidification and suggest that ecological damage will continue to occur until this process is mitigated and the acid neutralizing capacity of watersheds is restored. Consequently, the CAAA of 1990 are shown to be insufficient and alternate plans of action are proposed.

Making New Neurons: The Importance of Light and Locomotion

Maria Genco ’06, Neuroscience and Suzanne Forrest ’06, History
Advisor: Barbara Beltz, Biological Sciences

Neurogenesis, the birth of new neurons, has been found in a variety of vertebrate and invertebrate animals. Neurogenesis in the brains of lobsters (Homarus americanus) and crayfish (Procambarus clarkii) is regulated by the day/night cycle. In these studies, we manipulate environmental light conditions and photoreceptors in order to learn more about how light regulates the production of new neurons and locomotory activity. We use two approaches to study the regulatory pathways: indirect interference through stroboscopic and constant light illumination and direct interference with the known photoreceptive systems. We present experimental results showing the effects of strobe and 24-hour light conditions on neurogenesis. We also introduce a new method of studying neurogenesis through the entrainment of locomotory activity patterns and photoreceptive systems of P. clarkii and C. destructor. (Research supported by the Office of the Dean of the College, Marie and John Zimmermann Fund, Howard Hughes Medical Institute, NIH Grant, NSF Grant, and Sigma Xi.)

Poisons, Pollution, and Plasmids: Antibiotic and Heavy Metal Resistance in Bacterial Isolates from a Contamination Site

Anne A. Madden ’06, Biological Sciences and Maria V. Banica ’06, Biological Sciences
Advisor: Mary M. Allen, Biological Sciences

Participating in ongoing research efforts using bacterial strains isolated from a heavy metal contamination site (Paintshop Pond), we examined the potential correlation between heavy metal and antibiotic resistance. Previous studies suggest this resistance may be conferred by plasmid-derived gene products. Genomic and plasmid DNA extraction and amplification, as well as chromium, lead and antibiotic sensitivity tests, allowed us to determine the presence of, and correlation between, these types of resistance in our bacterial isolates via constructed phylogenetic trees. In addition, by analyzing the effect of pH on the toxicity of these metals, we investigated the potential role of acid rain in altering bacterial resistance to heavy metals at contamination sites. This study provides a more accurate understanding of the true toxicity of this past pollution and its environmental implications. (Research supported by the Howard Hughes Medical Institution.)

Constitutional Challenges: Genes, Penalty, and Porn (short talks) Science Center 396


Jemma Lohr McPherson ’06, Art History and History
Advisor: Nathaniel Sheidley, History

The 1848 murder of Thomas Harding was hardly remarkable, taking place in a notoriously dangerous part of Boston. However, the execution of Washington Goode for that murder was anything but ordinary. Thousands of people organized to protest Goode’s hanging, gathering at rallies, signing petitions and publishing pamphlets with unprecedented urgency. Why? Judges in this period were subject to great scrutiny; was the fame of the judge who tried Goode important? Both Harding and Goode were black; was the explosive debate surrounding race and slavery in 1840s New England an influence? The evidence presented at trial was mostly circumstantial; was the trial itself flawed? Through a careful examination of newspaper articles, activists’ literature and sermons, I demonstrate that Goode’s case belonged to a larger debate about the place of executions in antebellum America. I also consider to what extent the Goode case is relevant in current discussions of capital punishment.

Young Adult Literature and Censorship

Katherine T. Adams ’06, History
Advisor: Barbara Beatty, Education

Young adult literature provokes controversy wherever it goes. From the classroom to the school library to the public library, young adult books are challenged on the grounds of morality. Questions such as who is challenging and to what they are objecting are explored through interviews, close reading, and historical evidence. In attempting to understand book challenges, both older books such as The Adventures
of Huckleberry Finn and The Chocolate War and newer books such as Walter Dean Myers’ Fallen Angels are closely examined. There are many different points of view in the book battles to consider, from the librarians and teachers who promote the challenged books to the variety of positions held by the challengers. Overall, the central issue in the young adult literature controversy is what information young adults should have and how should they be able to find this information.

Pornography as Product: A Speech Act Approach to Free Speech
Courtney Klaips ’06, Philosophy and Biological Chemistry
ADVISOR: Mary Kate McGowan, Philosophy

Pornography is currently protected under the First Amendment, and its protection is controversial. Some argue that pornography should be regulated because of the harms it causes. MacKinnon, by contrast, maintains that pornography is itself, a harm. In particular, she claims that pornography subordinates women. Although it may be initially unclear how speech could do such a thing, speech act theory demonstrates that speech can subordinate. This speech act approach faces several challenges. I argue that since pornography is a product and thus shaped by market forces, these challenges can be avoided, although other challenges are generated.

We Were “Born This Way”? The Ethics of Searching for a Gay Gene
Ashley D. Hicks ’06, Biological Sciences
ADVISOR: Charlene A. Galarneau, Women’s Studies

Recently, scientific research has been published that investigates possible genetic causes of homosexuality. Scientists who continue to search for a gay gene should recognize the impact of their research and its findings. The scientific community should acknowledge the legacy of past medicalization of homosexuality and allow members of the LGBT community to have a voice in research decisions. The search for a gay gene, coming on the heels of research for genetic causes of cancer and heart disease, implies that homosexuality is, at best, a biological anomaly. When many governments and societies sanction discrimination and violence against LGBT people, the potential for a gay gene to be used as a tool of homophobia and discrimination must be examined. As pre-implantation genetic diagnosis becomes more common and genetic testing for adults becomes available, the termination of fetuses with a gay gene and genetic discrimination by insurance companies and employers could become a reality.

Within Self/Without Self (short talks) Pendleton East 139

Predictors of Adolescent Girls’ Parasocial Relationships with Media Figures
Emily Newberg ’06, Psychology
ADVISOR: Sally Tharan, Psychology

Parasocial relationships, defined as the symbolic, one-sided quasi-relationships between a viewer and a mediated personality (Horton & Wohl, 1956), have gained a great deal of recent interest. Adolescent girls may be especially prone to forming these relationships with media figures. Research has shown that adolescent girls struggle with issues of self-esteem, depression, forming attachments, and creating a functional support system, indicating that they are a particularly vulnerable group. This study examines predictors of adolescent girls’ parasocial relationships with media figures in the context of normal development. Insecurely attached adolescent girls with lower self-esteem, less social support, and symptoms of depression are expected to form parasocial relationships more readily than others. (Research supported by the psychology department and the Office of the Dean of the College.)

A Social Comparison: Children’s Imaginary Companions and Real Friends
Ashley Groh ’06, Psychology
ADVISOR: Robin M. Akert, Psychology

Enter the world of children’s make-believe. Nearly 65% of children create imaginary companions (ICs), yet little is known about how a child’s relationship with an IC influences the child’s development. I will assess the developmental significance of children’s relationships with ICs by answering two key questions. Do children create ICs who are similar or dissimilar to themselves? And do children create relationships with their ICs that are similar or dissimilar to their relationships with their real friends? Both answers will offer valuable insights into children’s psychological development.

Memory for Stories with and without Supplemental Sensory Engagement
Carly M. Fair ’07, Psychology and Katherine E. Tyson ’07, Psychology and English
ADVISOR: Tracy Gleason, Psychology and Mary Ucci, Director, Child Study Center

This fall we conducted a study at the Child Study Center as part of our Research Methods in Developmental Psychology class. This study was designed to see whether increasing the number of senses involved in hearing a story would enhance memory of this story compared to a traditional reading. The study also looked at the differences in memory between three- and four-year-olds. We read a story to three- and four-year-olds and tested them a week later to see how well they remembered the story. The experimental group heard the story read aloud while acting it out with props related to the story content, while the control group simply heard the story read aloud. Through statistical analyses, we discovered that the four-year-olds performed better than the three-year-olds on recall tasks. However, we found no difference between the control and experimental storytelling conditions.

3:00 – 4:10
Work and Families: The State of Social Policies (panel)
Pendleton West 116

Deadbeat Dads, Welfare Moms, and the State: Evaluating Child-support Enforcement since Welfare Reform
Emily Oldshue ’06, Healthcare Policy and Ethics and Women’s Studies
Advisor: Rosanna Hertz, Women’s Studies
Convinced that states could reduce their welfare expenditures by making absent fathers into providers, President Clinton’s 1996 welfare reform legislation required states to increase paternity establishment and child-support enforcement by instituting new and improved mechanisms for tracking (mostly) unwed, noncustodial fathers. Under Reform, women whose children receive state benefits are required to subrogate their paternity-establishment and enforcement rights to the state, allowing Department of Revenue officials to bring absent fathers before the court in order to establish support orders and impose sanctions for noncompliance. This multiyear study collected data from three Massachusetts courthouses, offering almost 800 cases from which to draw conclusions about the current system’s effectiveness in moving single mothers off of welfare. This presentation will address issues of enforcement, visitation, and the disparate treatment of men and women in court. (Research supported by a Schiff Fellowship.)

How Low-Income Families Manage Child Care and Employment Given the Current Child-care Policy Context
Christann Spiegel ’06, Women’s Studies
Advisor: Rosanna Hertz, Women’s Studies
The focus of my research is a qualitative examination of how current child-care policies in the U.S. affect the daily lives, choices and experiences of low-income women and their families. I have interviewed women with children from central Massachusetts who are in the process of transitioning off of welfare or still receiving welfare. These women all rely on child-care vouchers to attend either school or to work outside of the home and their ability to secure child-care vouchers are crucial to their being able to attain true independence and equality. I feel there are still many misconceptions about both child care and welfare recipients that work together to create an atmosphere of societal apathy. In my research I hope to understand better how low-income women combine their work and family lives while simultaneously struggling daily to make ends meet and to fulfill their welfare and child-care voucher guideline obligations.

Reconciling Motherhood and Work: A Comparison of Sweden, Japan, and the United States
Larissa Rochford ’06, American Studies
Advisor: Rosanna Hertz, Women’s Studies
My research will focus on the differing family and employment policies in Sweden, Japan, and the United States and how these policies affect married women’s ability to balance motherhood and employment. More specifically, I will address family-leave policies, job flexibility, and daycare/after-school care quality and accessibility, all of which play crucial roles in allowing women to succeed as working mothers. While Sweden, Japan, and the United States are similarly developed, industrialized nations, their different government systems and social climate have influenced diverse policies that have served to help and hinder working mothers. I will explore the various historical, social, and cultural reasons for these policy differences and examine their benefits and disadvantages for employed mothers.
Classes and Years: Learning as We Go (short talks) Pendleton East 239

The Power of Oratory: A Classroom Ethnography
Caterina D. Del Conte Brandon ’06, Peace and Justice Studies and Madeline L. Surgeoner ’08, Psychology
Advisor: Verónica Darer, Spanish

This presentation is the culmination of a semester of qualitative research completed in the seminar EDUC 307, Ethnography of Education and Classroom Discourse. The goal of the course was to understand the inner workings of a class at a small, private liberal arts college, and to analyze interactions that occurred between professors and students. Some of our guiding questions were: What is the culture of this specific classroom? What does it take to be a successful student in this particular class? The surprising results of the discourse analysis yielded possible reasons for the continuous high enrollment of students in this course.

The First-Year Experience at Wellesley: Students’ Transition to College
Cristin Bates ’08, Sociology
Advisor: Lee Cuba, Sociology

Do you feel like Wellesley is your home? This past year I have studied how first-year students develop a sense of belonging at Wellesley. Why are some students able to do this quickly and successfully, while others struggle to feel comfortable here? When and how are students able to strike a balance between course work, participating in extracurricular activities, and socializing with their friends? I considered these types of questions while taking part in discussions at first-year focus groups, examining survey data, and reading scholarly works on the first-year experience. My presentation will focus on what students learn about themselves in their first year, how they decide what is most important to them, and what goals they set for the years ahead. (Research supported by the Sophomore Early Research Program.)

Japanese/English Code-Switching in the Wellesley College Community
Sonja K. McNeir ’06, Japanese Language and Literature
Advisor: Andrea Levitt, Cognitive and Linguistic Sciences/French

Wellesley College is a haven for linguistic research on bilingualism, and my thesis project examines the speech habits of the local Japanese-English bilingual population. Code-switching – the alternation between two languages in a conversation – is a linguistic phenomenon that occurs frequently within bilingual communities. Code-switching is governed by grammatical constraints and is also influenced by a variety of social factors, such as the participants of the conversation, the location, and the topic under discussion. In order to explore these areas, I recorded conversations of Wellesley College Japanese-English bilinguals and transcribed and analyzed their code-switches. I also constructed a grammatical quiz to test proficient bilinguals’ grammatical judgments of written code-switches. This presentation is an overview of the results I have obtained. (Research supported by the Office of the Dean of the College.)

You Get What You Give: Lessons in Microteaching
Stephanie L. Abbott ’06, American Studies and Peace and Justice Studies, Katherine M. O’Connor ’06, Political Science and Danielle Paxton ’07, Psychology and Spanish
Advisor: Verónica Darer, Spanish

With this research project, we took a brave leap to analyze ourselves as teachers. In order to examine our classroom talk and our interactions with students, we created a lesson, taught it to peers, and video- and audio-tape recorded it. Next, we transcribed the discourse that occurred during the lesson, analyzed it by using domains (categories), created a taxonomy (a map for understanding our unique classroom culture), and triangulated our findings. The investigation resulted in a crucial and revealing examination of us as teachers. Moreover, the study provided insights into the challenges presented in discussing sensitive topics, such as ethnicity and socio-economic status, in classroom settings.

Images of Globalization: Independent Research from SOC 321 (panel)
Science Center 278

Rebekah Petek Altug ’08, Shavanna Calder ’08, Cinema and Media Studies, Stella Silverstein ’07, English, and Shin Bin Tan ’07, Sociology
Advisor: Peggy Levitt, Sociology

McDonalds, Starbucks, and the Gap are now common features on the street corners of Europe, South America, and Asia. Michael Jackson enjoys unprecedented popularity in the Far East while, in the U.S., we are fascinated by karaoke and Indian films. Does this globalization of production and consumption mean that we are all becoming the same? In this panel, students will present findings from independent research projects on aspects of globalization.

The Atmosphere and Beyond (short talks) Science Center 104

Low-Energy Electron-induced Oligomerization of CCl₄ on Mo(110)
Lachelle D. Weeks ’06, Chemistry and French
Advisor: Christopher Arumainayagam, Chemistry

The low-energy, electron-induced chemistry of condensed CCl₄ has been investigated using postirradiation temperature programmed desorption (TPD). These experiments were motivated by the growing interest in developing facile and
economical methods for decomposing CCl₄ and other halocarbon environmental pollutants. The experimental procedure involves low–energy (3–50 eV) electron irradiation of nanoscale thin films of CCl₄ (~10 Å thickness) grown at 100 K on a Mo (110) single crystal under ultrahigh vacuum (UHV) conditions (base pressure ~ 1 x 10⁻⁹ torr). Results of post-irradiation temperature programmed desorption experiments were used to identify C₂Cl₄, C₂Cl₂C₂, C₂Cl₆, and C₆Clₓ as radiolysis products of CCl₄. Neither C₄Cl₆ nor C₆Clₓ has been previously identified as a γ-radiolysis or electron-induced radiolysis product of CCl₄. These results suggest that the electron-induced oligomerization of CCl₄ produces two-, four-, and six-carbon species but not three- or five-carbon species. We propose a reaction mechanism involving trichloromethyl (•CCl₃) and dichlorocarbene (•CCl₂) radicals.

Radial Velocities of Circumstellar Line Features in the Ultraviolet Spectrum of the Binary Star System VV Cephei

Amanda Zangari ’08, Astrophysics and Mathematics

ADVISOR: Wendy Hagen Bauer, Astronomy

From 1997 to 2003, the Hubble Space Telescope observed the binary star system VV Cephei. This system consists of a small, hot B-type star orbiting a cool M supergiant star so large that if placed in the center of our solar system, would stretch beyond the orbit of Jupiter. The M supergiant is further surrounded by an extensive gaseous envelope. Every 20 years, the hot component goes into eclipse behind the cool supergiant. As it emerges, its orbital motion can be used to probe the structure of the extended supergiant envelope. This envelope is produced by rapid mass loss in a “stellar wind” from the supergiant, which can be detected through narrow, blue-shifted absorption features in the observed spectra. I will present measurements of the velocity of this wind as determined from these features as observed in different positions within the stars’ orbits. (Research supported by the Office of the Dean of the College.)

Light-curve Study of Koronis Family Asteroids and Adventures on the Way

Sarah Maynard ’08

ADVISOR: Stephen Slivan, Astronomy

I used the Wellesley 24-in. telescope to observe and record the brightness changes of asteroids in the Koronis Family. Then, learning to use the IRAF software for image analysis, I processed and extracted the image data from the pictures taken with the telescope. This data produced light curves which are used to determine rotation periods and spin directions for the asteroids. I will discuss my results, along with some “surprises in the sky” and other challenges I encountered when exploring the universe from a research telescope near sea level in southeastern New England.

Modifying Our World: Original Projects in Biomaterials and Nanotechnology (panel) Pendleton East 139

Jessica Bell ’06, Chemistry, Annie Gaffey ’06, Chemistry, Eliane Park ’06, Chemistry, Munzarin Qayyum ’06, Chemistry and Economics, and Katie Wagner ’08

ADVISOR: Nolan Flynn, Chemistry

The importance of biomedical devices, with an estimated U.S. market of over $5B per year, has created a need to control surface interactions, especially as these devices become smaller and capable of performing more functions. Biomaterials are synthetic or natural materials that interact with a biological system. Using functionalized nanoparticles to form a self-assembled monolayer on varying substrates, the adsorption of proteins and cells to surfaces can be controlled. The focus is on having surface coatings that prevent nonspecific adsorption of proteins. 2-D and 3-D polymers are also studied. Thermoresponsive linear polymer chains are studied for use in surface modification of metals such as gold. Hydrogels are cross-linked polymer networks; here, hydrogels with temperature-dependent water interactions are investigated for use in drug delivery and environmental remediation. (Research supported by a Schiff Fellowship and the American Chemical Society-Petroleum Research Fund.)

Self and Identity

Bach’s Life Lessons: Reflections on Studying and Performing Partita no. 2 in D Minor (long performance) Pendleton West 220

Erika Larson ’06, Medical Ethics

ADVISOR: Laura Bossert, Music

It is often said that one could study the unaccompanied violin sonatas and partitas of J.S. Bach and never stop learning them, not because they are prohibitively technical but because to perform them requires a lifetime of experiences. Despite this daunting description, the first and most challenging step is often simply to learn the notes and move on from there to add personal interpretation to the performance and build from those experiences. The process of learning Partita no. 2 in D Minor has spanned several years from high school through college, from Washington State to Massachusetts, and from one teacher to the next. During that time lessons on patience and dedication have been learned and become more poignant than other lessons learned in life. This performance of the complete unaccompanied partita does not mark the end of the journey but the next step in the process.
Modernity is characterized by the rise in military technology and capacity for destruction as well as by the development of a human rights culture throughout the world. My study analyzes the ways in which the two trajectories have become increasingly interrelated in the Army through the development of human rights education in the military. The ongoing public debate regarding human rights abuses and torture by members of the U.S. military make the exploration of the treatment of human rights in the military ultimately timely. Through on-site interviews with Army instructors, I explore how the unique elements of the institution of the Army, such as its strict adherence to hierarchy, affect the way in which human rights are taught by the Army. I also take up the question of how human rights are taught to military personnel in terms of the "War on Terror." (Research supported by a Schiff Fellowship.)

From Governor Blagojevich to Senator Clinton: Electrifying the Progressive Base at the American Democracy Institute’s Midwest Regional Summit
Jessica Lee '06, Political Science
Advisor: Alan Schechter, Professor Emeritus, Political Science

The American Democracy Institute is a nonprofit, nonpartisan educational and research institute that is committed to engaging American citizens in a national conversation about our democracy and its meaning in the twenty-first century. On Dec. 3, 2005, ADI convened in Chicago, IL for its first regional leadership summit. From Governor Blagojevich of Illinois to Senator Clinton, who serves as honorary chair of ADI’s Youth Initiative, the conference excited and fueled more than 4,000 young students and leaders from the Midwest. As a National Advisory Member of ADI, I was intricately involved with the planning and organizing of the event. I will share what I learned from the event and the ways in which organizations like ADI can help restore integrity to our democratic institutions and renew the principles and ideals of our democracy. (Sponsored by the Office of Equal Opportunity’s Leadership Initiative Grant.)
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