WELLESLEY COLLEGE

THE RUHLMAN CONFERENCE

A CELEBRATION OF STUDENT ACHIEVEMENT

APRIL 24, 2013
It gives us great pleasure to welcome you to the 2013 Ruhlman Conference. Made possible by the Barbara Peterson Ruhlman Fund for Interdisciplinary Study, the Ruhlman Conference is intended to foster collaboration among students and faculty across the disciplines and to enhance the intellectual life of the College. The event provides an opportunity for students, faculty, staff, friends, family, and alumnae to come together in celebration of student achievement.

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

Attentive to the diversity of student interest and accomplishment, the Ruhlman Conference includes a variety of formats for the presentation of student work: papers, panels, posters, exhibitions, musical and theatrical performances, interactive teaching presentations, and readings of original work. Representing the work of nearly 400 Wellesley students, the 2013 Ruhlman Conference is organized around three major themes: Humanities, Science and Technology and Social Sciences.

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

The 2012–2013 Program Committee for the Ruhlman Conference

Laura Adamczyk
Annual Giving

Pauline Carpenter
Resources

Amy Chandler-Nelson
Office of the Provost and Dean of the College

Sunayana Dyer
Office of Special Events

Ali Fischer
Class of 2013

Hannah Galin
Class of 2013

Kristen Gallagher
Office of the Provost and Dean of the College

Koichi Hagimoto
Spanish

Soomi Kim
Class of 2014

Joy Playter
Office of the Class Deans

Mala Radhakrishnan
Chemistry

Erin Richardson
Computing and Media Support

Brian Tjaden
Computer Science

Jay Turner
Environmental Studies

Akila Weerapana
Economics
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 we 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.

More than 15 years later, it is hard to imagine Wellesley without the Ruhlman Conference. It is built into our calendar and our consciousness. Students look forward to their presentations as they plan their research projects. Faculty mark the years by remembering which students participated in a Ruhlman panel or poster session. Deans describe the conference to candidates for faculty positions as one of the great selling points of the institution. Other colleges planning student research conferences look enviously at the structure we have built. Part of the joy of the day is the way in which traditional divisions are broken down.
Science talks happen in Pendleton, poetry readings in the Science Center. Panels are created that cross disciplines and make new connections; the audiences are filled with staff, faculty, and students interacting with the presenters and with one another in new ways. And part of the joy comes from Barbara Ruhlman’s obvious delight in her creation. The gratitude that flows back and forth between her and the students adds to the special nature of the day and is a manifestation of the connections among generations of Wellesley alumnae. It is not difficult to see why the Ruhlman Conference has become such a valued Wellesley tradition.

Lee Cuba is 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.

Adele Wolfson is the Nan Walsh Schow ’54 and Howard B. Schow Professor in the Physical and Natural Sciences. She was Associate Dean of the College from 2004–2010 and chaired the program committee.
## Conference at a Glance

### Humanities

<table>
<thead>
<tr>
<th>Themes</th>
<th>9:30–10:40am</th>
<th>11am–12:10pm</th>
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<td>Wellesley Chamber Music Society Long Performance: Exploration and Performance of Antonin Dvorak Piano Quintet No. 2 in A major, Op.81 (long performance) JAC Auditorium</td>
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<td>Controversial Public Art and Its Politics (panel discussion) JAC 450</td>
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<td>Re-defining the Birdbrain: Investigations of Learning and Memory in Songbirds (panel discussion) FND 120</td>
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**key:**
- **FND**—Founders Hall
- **JAC**—Jewett Arts Center
- **PNE**—Pendleton East
- **PNW**—Pendleton West
- **SCI**—Science Center
All members of the Wellesley College community are invited to enjoy lunch on the Wang Widows, in the vicinity of the lunch tent. Light lunchtime entertainment is provided by The Blue Notes, The Tupelos, and the Wellesley tented service location with the Campus Center and Alumnae Hall as indoor rain locations.

### 1:30–2:40pm

- The Search for Self Across Continents (short talks) PNE 339
- Asian American Studies: Why it Matters to Everyone (panel discussion) FND 120
- From the Sublime to the Ridiculous, And Back Again (long performance) PNW 220
- Exploring the Musical Vibrancy of the Baroque through Eighteenth Century Instruments (long performance) PNW 220
- From Calves to Kindles: The History of the Book (on location presentation) Special Collections, Clapp Library
- Tactile History: The Story of Wellesley College’s Textile Collection (on location presentation) Print Room, Davis Museum
- Het Achterhuis: The Diary of Anne Frank Revisited (exhibition) JAC Gallery
- North Korea and the Female Figure: Painting in the Political and the Personal (exhibition) JAC Gallery
- Process for Progress/Proceso para Progreso: Realities of Artistic Process for Environmental Progress (exhibition) JAC 452
- No Place like Here: A Collection of Poems (literary reading) JAC 454
- Translation and Poetry: Defining Authorship through Practice (literary reading) JAC 454

### 2:45–3:15pm

- From Calves to Kindles: The History of the Book (on location presentation) Special Collections, Clapp Library
- Tactile History: The Story of Wellesley College’s Textile Collection (on location presentation) Print Room, Davis Museum
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### 3:15–4:00pm

- Asian American Studies: Why it Matters to Everyone (panel discussion) FND 120
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### 4:00–5:00pm

- From Calves to Kindles: The History of the Book (on location presentation) Special Collections, Clapp Library
- Tactile History: The Story of Wellesley College’s Textile Collection (on location presentation) Print Room, Davis Museum
- Process for Progress/Proceso para Progreso: Realities of Artistic Process for Environmental Progress (exhibition) JAC 452
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### Key

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- SCI—Science Center
## Conference Schedule

### 8:30–9:30am

**Continental Breakfast**

Continental breakfast served in Pendleton Atrium and Science Center Focus.

### 9:30–10:40am

#### Humanities

**Chinese Today: Near and Afar (panel discussion) Founders Hall 126**

Sophia S. Chen, Wendy M. Foo, Virginia Hung, Kelsey A. Ridge, Christianne L. Wolfson, Audrey M. Wozniak, Ji Qing Wu

**Controversial Public Art and Its Politics (panel discussion) Jewett Arts Center 450**

Katherine E. Dresdner, Caitlin J. Greenhill, Diana T. Huynh, Laura C. Marin, Cassandra Tavolarella

#### Science & Technology

**Breaking Bad: Drugs, Delivery, and Disease (short talks) Pendleton Hall East 139**

Two Methods of Synthesizing Novel Thiocarbonyl Agents for Drug-Resistant Mycobacterium Tuberculosis

Alexa Jackson, Amelia S. Williams

The Synthesis and Evaluation of Residues 6-36 of Alpha-Synuclein

Madelyn P. Kallman

Tackling a Silent Disease: Determining Best Practices for Management of Childhood Stroke

Hayley E. Malkin

Progress Towards the Synthesis of a Novel Electroactive Compound for Surface Modification of Gold Nanoparticles

Nicole A. Spiegelman, Hong Zhang

#### High Impact Science on the Final Frontier (short talks) Science Center 104

Simple Impact Crater Morphometry: Distribution and Analysis of Martian Craters

Lynn M. Geiger

Circular Polarization and Incident Wavelength Independence in the Fresnel Rhomb

Wanyi Li, Renee Lu

Optimizing Exoplanet Transit Observations and Analysis

Kirsten N. Blancato, Anna V. Payne

#### (panel discussion) Founders Hall 120

Re-defining the Birdbrain: Investigations of Learning and Memory in Songbirds

Andrea J. Bae, Napim Chirathivat, Houda G. Khaled, Sima Lotfi, Ana K. Ortiz, Milena Radoman, Sahitya C. Raja

#### Science Center 278

Sparkly Hats and Cookie Dough: Stories from Computer Security

Erin Davis, Emily Erdman, Taili Feng, Michelle N. Ferreira, Margaret T. Ligon

#### Science Center 396

The Role of Low Energy Electrons in High Energy Radiolysis (panel discussion) Science Center 396

Sebiha M. Abdullahi, Mavis D. Boamah, Nathalie Rivas, Katherine E. Shulenberger, Audrey A. Tran, Katherine D. Tran

#### Science Center 277

“Change the World”: Projects from Predictions Paradigms and Joules (PPJ) an Experimental Olin/Wellesley Transdisciplinary Course

Ellen M. Bechtel, Trevor Hooton (Olin), Jared Kirschner (Olin), Emily L. Kurtz, Larissa Little (Olin), Celeste Maisel (Olin), Julia A. O’Donnell, David Pudlo (Olin), Slater Victoroff (Olin)
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<td>Jiezhen Wu</td>
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<td>Practical Laboratories and Unfulfilled Dreams: A Comparative History of Urban Planning in Japan and Its Colonies</td>
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<td>Lin Davina Huang</td>
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<td>Elimination or Integration: An Ethnography and Analysis of Decriminalization of Sex Work in Kigali, Rwanda</td>
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<td>Kathryn E. Kenney</td>
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<td>American Foreign Policy and Presidential Rhetoric in the Middle East: Strategic and Ideological Interests in the Aftermath of 9/11</td>
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<td>Kim A. Quarantello</td>
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<td>Being a “Good Neighbor”: The United States' Involvement in General Pinochet's Coup of 1973</td>
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<td>Chloe E. Emerson, Morvarreed E. Rezaian, Ilana Z. Walder-Biesanz (Olin)</td>
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<td>10:40–11am Break</td>
<td>Continental breakfast served in Pendleton Atrium and Science Center Focus.</td>
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<td>Global Asia (short talks) Pendleton Hall East 139</td>
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<td>Confucianism in East Asia</td>
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<td>Tulsidas' Ramcaritmanas: Translating Medieval Hindu Devotional Poetry</td>
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<td>Who Are You, Who Am I?: The Role of Otherness in Asian Identity Formation in Latin America</td>
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<td>Victoria M. Nguyen</td>
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<td>Food and Travel (short talks) Jewett Arts Center 450</td>
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<td>Labyrinth, the Shape of the Modern Mind: Kafka, Borges and Auster</td>
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<td>Jiwon Hahn</td>
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Home and Away: Questions of Travel in John Donne and Andrew Marvell
Gabrielle C. Linnell

Mad Funny: Representing Madness in the 18th Century
Christina J. Hsieh

A Comparison of Food Still Lifes by Pieter Claesz and Jean-Baptiste-Siméon Chardin
Danielle R. Ezor

Wellesley Chamber Music Society Long Performance: Exploration and Performance of Antonin Dvorak Piano Quintet No. 2 in A major, Op.81 (long performance) Jewett Arts Center Auditorium
Graeme L. Durovich, Natalie J. Griffin, Serena Liu, Maria Nikitin, Audrey M. Wozniak

Science & Technology

Green Means Go: Time for Environmental Action (short talks) Pendleton Hall West 116

To Sink or Swim: Explaining U.S. Coastal Sea Level Rise Policy
Kelly A. Mercer

The East-West Corridor: An Analysis of Nonviolent Direct Action at Work
Molly R. Cyr

Environmental Conservation and the Struggle for Environmental Justice and Sustainable Development in Vieques, Puerto Rico
Ada P. Smith

Environmental Policy in the Bag: What Plastic Bag Policies Teach Us about How to Make Successful Environmental Policy and Change Behavior
Katherine A. Corcoran

Seeing is Believing: Vision and Optics (short talks) Science Center 396

Binocular Stereopsis in Areas V2, V3, and V3A of the Macaque Monkey
Erin M. Yeagle

What Is One Plus One? Perceiving Asymmetrical Facial Expressions of Emotions
Katherine E. Limoncelli

Assessing the Morphology and the Viability of Engineered Tissue with Combined High Resolution Optical Imaging - Raman Spectroscopy
Laura Fandino

The Detection and Representation of Foreground vs. Background Objects
Da In Kim

App Inventor Development at Wellesley (panel discussion) Founders Hall 126
Karishma Chadha, Erin L. Davis, Emily L. Erdman, Johanna L. Okerlund

Perspectives on Public Health, Patient Access and Disease: from Accra to Boston (panel discussion) Pendleton Hall East 239
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Modeling the World, One Byte at a Time (panel discussion) Founders Hall 120
Raisa D. Antwi, Jacquelyn E. Blum, Connie Chen, Amelia B. Kreienkamp, Lucy Y. Liu, Helena W. Qi, Ying Yi Zhang

Role of PATL in Plant Vascular Development (panel discussion) Science Center 278
Angela C. Ai, Emma M. Britain, Nevatha Mathialagan, Elze Rackaityte
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<td>Personalizing Justice: Beyond the Chambers of the ICTY to the People of Sanski Most&lt;br&gt;Kathleen A. Sprague</td>
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<td>The Formation of Tibetan National Identity in Diaspora&lt;br&gt;Tenzin Y. Dongchung</td>
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<td>Pacification of Rio’s Favelas Through a Feminist Security Lens: The Case of the Econdidinho Favela Residents&lt;br&gt;Danielle C. Milagre Pimenta</td>
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<td>Cultural Universalism, Cultural Relativism and Minimal Morality: Ethnographic Case Studies (panel discussion) Jewett Arts Center 454&lt;br&gt;Pauline O. Day, Adeline S. Lee, Samantha T. Spiga</td>
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**Break**

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| 1:30-2:40pm | **Humanities**<br>The Search for Self Across Continents (short talks) Pendleton Hall East 339 | Pendleton Hall East 339   |
| 1:30-2:40pm | You Can’t Go Home Again: A study of Colonial Impact on Nigerian Literature through the Works of Chinua Achebe and Wole Soyinka<br>Clara S. Brodie | Pendleton Hall East 339   |
| 1:30-2:40pm | Forging a New Russian Hero: Post-Soviet Science Fiction and Its Moral Objectives<br>Elena S. Mironciuc | Pendleton Hall East 339   |
| 1:30-2:40pm | Nadine Gordimer, “The Conscience of South Africa”<br>Mariana Zepeda | Pendleton Hall East 339   |
| 1:30-2:40pm | Notions of Inheritance in Joyce’s Ulysses and Faulkner’s Absalom Absalom!<br>Lucy V. Cleland | Pendleton Hall East 339   |

**Asian American Studies: Why it Matters to Everyone (panel discussion) Founders Hall 120<br>Bernice Y. Chan, Karina S. Chan, Julie Chen, Christie H. Lee, Rebecca J. Lee, Sukin Sim, Kily A. Wong, Ya Yun Zhang**

**From the Sublime to the Ridiculous, And Back Again (long performance) Ruth Nagel Jones Theatre, Alumnae Hall<br>Jan E. Adkins, Rachel E. Cherry, Margaret E. Dunn, Vannessa K. Greenleaf, Hilary J. Gross, Elizabeth M. Jaye, Alexa P. Keegan, Lindsay S. Rico, Emily M. Shroot, Annie Wang**

**Exploring the Musical Vibrancy of the Baroque through Eighteenth Century Instruments (long performance) Pendleton Hall West 220<br>Elizabeth M. Bachelder, Samantha M. Stephens, Madeline M. Thayer**

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**Wellesley College Ruhlman Conference 2013**
From Calves to Kindles: The History of the Book (on location presentation) Special Collections, Clapp Library
Cassandra L. Hoef, Dominique R. Ledoux, Morgan E. Moore, Polina N. Soshnin

Tactile History: The Story of Wellesley College’s Textile Collection
(on location presentation) Print Room, Davis Museum
Sara M. Putterman

Het Achterhuis: The Diary of Anne Frank Revisited (exhibition) Jewett Arts Center Gallery
Danielle R. Ezor

North Korea and the Female Figure: Painting in the Political and the Personal
(exhibition) Jewett Arts Center Gallery
Christine Yeh Jin Oh

Process for Progress/ Proceso para Progreso: Realities of Artistic Process for Environmental Progress
(exhibition) Jewett Arts Center 452
Caitlin J. Greenhill

No Place like Here: A Collection of Poems (literary reading) Jewett Arts Center 454
Jaya A. Stenquist

Translation and Poetry: Defining Authorship through Practice (literary reading) Jewett Arts Center 454
Arielle A. Concilio

Science & Technology

Cancer: Causes and Cures (short talks) Pendleton Hall West 116

Targeted Delivery of Boron-10-Loaded Peptide Polymers to Pancreatic Adenocarcinoma Cells Via
Bioconjugated Gold Nanoparticles for Neutron Capture Therapy
Sara F. Althari

Development of an In Vivo Assay for Antibody-Conjugated Gold Nanoparticles (AuNPs) Targeted
to Human Pancreatic Tumor Xenografts Using an Ex Ovo Avian Embryo Culture System
Ilana R. Pollack

Metabolomic Basis of Metastasis: Warburg Effect in Molecular Oncology
Ashley J. Porras

Targeting Driving Mutations: Exploring Better Treatment Options for Childhood Acute Myeloid Leukemia
Camille E. Hamilton

Engineering for Humanity: Helping Elders Age in Place through Partnerships for Healthy Living
(panel discussion) Science Center 104
Tamanna Ahmad (Babson), Lauren Frochauer (Olin), Hayley Hansson (Olin), Sean Karagianes (Olin),
Kathryn Kenney, Jeremy Liu (Babson), Justin Poh (Olin), Shubhangini Prakash (Babson)

Light Waves, Matter Waves, and Brain Waves (short talks) Pendleton Hall West 117

A Cool Way to Detect Gravity Waves
Lamiya B. Mowla

The Effect of Gas Pressure on Ultraviolet Absorption of Sulfur Dioxide
Hannah E. Herde

Analysis of Rat P3 in Frontal and Parietal Lobes as a Possible Neural Correlate of Attention
in Active and Passive Oddball Paradigms
Allicia O. Imada
Spectral Analysis of Local Field Potentials in Frontal and Parietal Cortex of Rats Behaving During a Sustained Attention Task
Caroline P. Dodge

Sticky Situations: Social Stability and Problem-Solvings (short talks) Pendleton Hall East 139
Remembering the Imagined Personal Future: How Anxiety Influences Memory and Future Thinking
Yue Xing
Personality Stability in Late Life: Is Openness Plastic?
Katherine A. Smiley
Using Imagined Interactions to Solve Social Dilemmas
Katrina A. Tarmidi

Technology in Biology: Utilizing Innovative Interactions to Foster Collaborative Learning in Biology (on location presentation) Science Center 173
Linda Ding, Taili Feng, Michelle N. Ferreirae, Casey E. Grote, Veronica J. Lin, Sirui Liu, Kara Y. Lu, Kelsey L. Tempel, Wendy M. Xu

POSTER SESSION Science Center Focus
A Systematic Study of the Chemical Stress Response Induced by Bleach And Vinegar in E. Coli on Viability and Protein Expression Profiles Using Plating Assays And Matrix-Assisted Laser Desorption Ionization (MALDI) BiotypeTM System
Serena Liu
The Bronze Age Cemetery from Hapria, Romania
Jenna M. Watson
Simple Structure, Entity Theory, and the Formation of Cognitive Barriers when Processing Mathematical Complexity
Sierra Sarnataro-Smart
Modeling Stroke in Newborn Mice
Mehwish A. Mirza
Signaling Mechanisms and Physical Structure of Biofilm Growth in Synechocystis sp. Strain PCC 6803
Jennifer E. Fishbein
Biofilms and Light Signaling in Synechocystis sp. Strain PCC6803
Zihan Dong
Rejuvenation of a Cesium-Based Dispenser Photocathode in Response to Atmospheric Contamination
Alexandra L. Day
Become Your Own Superhero: effects of Self-Transformation on executive functioning
Karina K. Chung, Aryanne D. de Silva
Effect of Saturation and Stereochemistry on the Biological Activity of a Novel Series of Coumarin Derivatives as Promising Pancreatic Cancer Therapeutics
Alysia Bacay, Christine Chu, Maria Jun
Protease Sensitivity Map of the Highly Structured Heterodimerization Domain (HD) of the Human Notch 2 Receptor in the Presence and Absence of the Furin Cleavage Loop
Kimberly S. Cabral, Catherine Y. Cheng, Aliya R. Khan
Looking for Exoplanets
Kerrin M. Arnold
Design and Synthesis of a Novel Series of Isoprenylated Coumarins as Potential Anti-Pancreatic Cancer Agents
Alyssa Bacay, Maria Jun

Raging hormones of the 'Teenage' Flour Beetle: Mechanisms of Metamorphosis Regulation in Tribolium castaneum
Leila Chaieb, Amy Ko

Biological Evaluation of a Novel Series of Isoprenylated Coumarins as Promising Pancreatic Cancer Therapies
Alyssa Bacay, Maria Jun

Task-related activity of neurons in rat cortex during active auditory detection
Kaitlin S. Bobon

Extracellular Thimet Oligopeptidase is Carried by Cell Membrane Microvesicles of Prostate Cancer Cells
Yu Liu

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**Social Sciences**

Community Building (short talks) Pendleton Hall East 239

IN(VISIBILITY): The Impluvium Installation
Elina R. Blaine

Moving out into the World: Community Writing and Impact
Mona I. Elminyawi

Letting The Elderly Speak: Stories of Physical and Mental Well-being in the Aging Population
Jane Qu

Boston Cafés: A Connection to City Life
Megan N. Turchi

Daniels Fellows (short talks) Jewett Arts Center 450

An Investigation of the Feasibility and Progress of the Millennium Development Goals in the Kingdom of Swaziland: A Case Study
Andrea D. Kine

Outside the Literal House: Staging Euripides’ Orestes
Megan S. Wilson

Creating a Passive Refrigerator: Reducing Energy, Reusing Waste, Recycling the Ice House Concept
Carly L. Gayle, Benjamin Chapman (Olin)

Christine Yeh Jin Oh's exhibition, "North Korea and the Female Figure: Painting in the Political and the Personal", will be on display in the Jewett Arts Center Gallery at this time.

Know Nothing of Other Languages, Know Nothing of One’s Own (short talks) Science Center 396

Language and Secession: The Relationship Between Language Attitudes and Nationalist Ideology in Quebec
Laura M. Dulude

The Choice of Language Class and One’s Personality
Eriko Houlette

Language Use and the Fraternity House: Communication and Brotherhood
Amanda A. Coronado

Investigating the Relationship between Age of Acquisition of a Second Language and Lexical Retrieval Ability in Bilinguals
Andrea A. Takahesu Tabori
Maladies sans Frontieres: Global Health Problems (short talks) Science Center 278

The Growing Burden of Breast Cancer in the Global South: An Interdisciplinary Approach
Brianna D. Kronig

The Impact of Private Sector Pricing Policy on Health Care: Evidence from Walmart’s $4 Prescription Program
You Wang

Cancer in Africa: Brief Background, Current Challenges, Future Fixes
Sylvia K. Ilabuka

Global Commerce in Flux: How the World is Changing China and China is Changing the World (panel discussion) Founders Hall 126
Connie C. Shen, Xue Wu, Shuang Yin

Perspectives on Social Issues III: Research from the Wellesley College Freedom Project (panel discussion) Pendleton Hall West 212
Maria A. Brusco, Beba Cibralic, Amy N. Wickett

Gender and Cultural Production (panel discussion) Science Center 277
Asia C. Simi, Silvia M. Galis-Menendez, Emily F. Gamber, Yesenia Trujillo

POSTER SESSION Science Center Focus

Consumer Society
Clara M. Kahng, Jean H. Lee, Sia Smith-Miyazaki

A Veiled Threat? Scarves and Secularism in the Turkish Republic
Rebecca P. Lucas

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

3:00-4:10pm Humanities

Literary Expressions from Wood to Clay (short talks) Pendleton Hall East 239

Hemingway and the Accidental Art of Journalism
Sara M. Simon

Revelatory Words and Images: William Blake and the Artist’s Book
Rusi Li

Reflections on the Afterlife: Fra Girolamo Savonarola’s Perspective on the Eventuality of Death through Woodcut Illustrations
Isabelle R. Erb

The Fiction of the Fabricated Ruin: Exploring Memory in the Work of Adrián Villar Rojas
Mina Juhn

The Search for Liberty in Captivity: Cervantes in Africa (panel discussion) Science Center 104
Cara M. Borelli, Melissa M. D’Andrea, Molly E. McNamara, Rebecca J. Rubinstein, Gabriela M. Salcedo, Anne V. Wet, Anne M. Williams

The Unending Beauty of Schubert’s Lieder: A Lecture Recital on Word Painting (short performance) Jewett Arts Center Auditorium
Katherine A. Siegel

Mozart Sonata for Two Pianos in D major (K. 448) (short performance) Jewett Arts Center Auditorium
Chuyen Huang, Anita Z. Li
Science & Technology

Garbage In, Garbage Out: Wall Street, Main Street, and i-Street (short talks) Science Center 278

Technology and Wall Street
Akofa A. Ahiable

Incorporating Public Outreach into Existing Curriculum as a Solution to Bridge the Perceived Gap between Classroom and Real World Biochemistry
Catherine Y. Cheng

User-customizable Game Environment in iPhone
Hye Soo Yang

Arsenic in Asia: Genesis, Chemistry, and Environmental Implications
Siyi Zhang

Project Runway: Model Organisms (short talks) Pendleton Hall West 116

Latency in V4/PIT Vision Cells
Monica A. Gates, Jiun-Yiing Hu

Neuroprotective Agents: Understanding Female Sex Hormone Action in Diabetic Neuropathy
Sarah D. Finkelstein

The Genetic and Hormonal Mechanisms of Oncopeltus fasciatus Abdominal Patterning Regulation
Tiffany Chen

Choosing a Laboratory Animal: Understanding the Function of the Human Brain and Its Diseases through Various Animal Models
Michiko O. Inouye

You Are What You Eat (short talks) Pendleton Hall West 117

Modeling Obesity in C. elegans
Shaheen I. Rangwalla

Malnutrition and Behavior: Do Hungry Honey Bees Dance?
Hailey N. Scofield

The Secret Lives of Bluestreak Cleaner Wrasse in Hoga Island, Indonesia
Alyssa G. Wibisono

An Unlikely Relationship: Predator-prey Interactions between Flatworms and Tube-building Amphipods in the Chesapeake Bay
Julia N. Adams

Fight, Flight, and Regenerate (short talks) Science Center 396

Integrating Behavior and Biomechanics to Understand Fish Escape Performance
Tiffany Chen, Erin M. Connolly

The Role of Steroid Receptor Coactivators in Hormone Action in Brain
Young C. Hsu

Determining the Role of Hedgehog Signaling Pathway During Limb Regeneration in the Red Flour Beetle, Tribolium castaneum
Carla M. Villarreal

Investigating Electrical Stimulation Using Conduction Polymeric Materials for Peripheral Nerve Regeneration
Ava K. Mokhtari
# Social Sciences

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<thead>
<tr>
<th>Event Title</th>
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<tr>
<td>Going Insane in the Membrane: Investigating Protein-Lipid Interactions in</td>
<td>Science Center 277</td>
<td>Maria E. Bustillo, Alexandra L. Fischer, Julia A. Klaips, Maria A. LaBoyer, Jane E. Lodwick, Penny Wang, Amy Zhou</td>
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<td>the Elmore Lab (panel discussion)</td>
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<td>Resonance Rhapsody: Solving Biomedical Problems with Magnetic Resonance</td>
<td>Founders Hall 120</td>
<td>Tamara Biary, Yi Ling Dai, Zi Wei Liao, Palig Mouradian, Raji R. Nagalla, Rachel L. Parker, Eugenia C. White, Sarah K. Zemlok</td>
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<td>(panel discussion)</td>
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<td>Beauty in the Eye of the Beholder (short talks) Pendleton Hall West 212</td>
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<td>Commodification and Valuation of the Female Body in the New Orleans Slave</td>
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<td>Elizabeth A. Brown</td>
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<td>Look at me, Don’t Look at me: Body Image and Types of Narcissism</td>
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<td>Katharine M. Hargreaves</td>
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<td>My Black is Beautiful: Exploration of Body Image in Students of African</td>
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<td>Really, You Find That Attractive? Explaining Differences in Tastes for</td>
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<td>Origins of the Contemporary Construct of Gender (short talks) Pendleton Hall</td>
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<td>An Evolutionary Bias: The Role of Gender in Fear Responses to In-group and</td>
<td>Margarita B. Rabinovich</td>
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<td>Out-group Targets</td>
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<td>The Disney Effect: An Examination of Disney Princesses and the Portrayal of</td>
<td>Michelle H. Cho</td>
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<td>Gender Roles</td>
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<td>John Locke and Modern Feminist Moral Psychology</td>
<td>Lillian Y. Li</td>
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<td>A History of Consumption and Advertising in China’s Women’s Lifestyle</td>
<td>Barbara F. Jiang</td>
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<td>Magazine: A Closer Look at ELLE</td>
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<td>The Clash of Cultures (short talks) Pendleton Hall East 339</td>
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<td>True-hearted Christian Teachers to Self-Help Girls: Visions of Students on</td>
<td>Katherine W. Cali</td>
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<td>Financial Aid at Wellesley College, 1878–1927</td>
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<td>Is Being Korean Cosmopolitan Possible? Exploring the Self-Identity and</td>
<td>Ji-Su Park</td>
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<td>Worldview of Korean International Students at American Colleges</td>
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<td>(Mis)representations of Hitler in India</td>
<td>Abigail R. Weitman</td>
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<td>Wearing Native: Misappropriated Indigenous Cultural Property in the Fashion</td>
<td>Kalina Yingnan Deng</td>
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<td>Gender in a Transnational Context (panel discussion) Jewett Arts Center 454</td>
<td>Jenny Jean, Monica A Setaruddin, Elizabeth Torres, Wendy W. West</td>
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<td>How Language Reveals Us: Insights From Sociolinguistics (panel discussion)</td>
<td>April M. Crehan, Blake Desormeaux, Catherine Guo, Gretchen K. Larsen, Ariel M. Robinson, Sarah E. Vaughn</td>
<td>Wellesley College Ruhlman Conference 2013 15</td>
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Perspectives on Social Issues I: Research from the Wellesley College Freedom Project (panel discussion) Founders Hall 126
Ana L. Medrano Fernandez, Lavanya Ganesh, Mallika Govindan

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

4:30-5:40pm Humanities

Let’s Go Europe (short talks) Pendleton Hall East 339

Italian Women in the 1930s: From the Fascist Vision of Woman as Prolific Mother and Devoted Wife to Female “Otherness” in Alba de Céspedes’ There Is No Turning Back
Mariya Chokova

Editorial in Translation: Non-Native English Speaking Authors and the Role of the Editor on the Journal of Italian Cinema and Media Studies
Sydney S. Cusack

The French Republic, “Eldest Daughter of the Church”?: La Morale Républicaine of 19th-Century Secular Instruction and Its Catholic Roots
Elizabeth A. Yazgi

Shipwrecks and Trade in the Archaic Mediterranean
Haley E. Bertram

Rhyme and Reason (short talks) Pendleton Hall East 239

Medieval Nonsense Verse: Contributions to the Genre
Bridget E. Begg

With So Good A Woman: The Nature of Love and Violence in Genre in Shakespeare
Kelsey A. Ridge

Poetry: The Scientific Method’s Missing Step
Sharon Tai

Henry IV Part 1: Provenance and Performance
Hilary J. Gross

From Sumo to Ofuro: An Exploration of Japanese Culture & Society (panel discussion) Jewett Arts Center 454

The Master of Nuevo Tango: Astor Piazzolla (long performance) Jewett Arts Center Auditorium
Ji Yeon Kim, Hui Li, Claudina X. Yang

Science & Technology

Biological Chemistry Program Honors Thesis Research Talks (panel discussion) Pendleton Hall West 117
Christa C. DeFries, Zihan Dong, Jennifer E. Fishbein, Emily M. Shortt

Factors Influencing Neurogenesis in the Crayfish, Procambarus clarkii (panel discussion) Science Center 104
Zain Fanek, Isabelle Gell-Levey, Jingjing Li

Food is Not Trash: Redefining Wellesley’s Waste Culture by Composting (panel discussion) Science Center 277
Small Particles with Big Impacts: Applications of Nanotechnology (panel discussion) Pendleton Hall West 116
Bao Minh T. Dang, Rebecca D. McClain, Stephanie G. Schmitt

Wellesley Global Medical Brigades: Honduras, Potrerillos and Guanacaste (panel discussion) Science Center 278
Nour J. Abdulhay, Yi Ling Dai, Kristina X. Duan, Catherine J. Ha, Victoria M. Nguyen, Ji I. Shin

Social Sciences

Our Colleges, Ourselves: Peer Effects of College Students (short talks) Pendleton Hall East 139
Revisiting Race and Class in Higher Education
Danielle A. Callendar

How Women Experience and Acquire Privilege in Elite Liberal Arts Colleges
Priscilla D. Gutierrez

Why Women’s Colleges?: Reassessing the Benefits of Single-Sex Higher Education for Women
Teresa K. Wisner

Ideological Diversity and Student Experiences at Wellesley College
Zoelle S. Mallenbaum

Suffering and Sadness: Life after Traumatic Events (short talks) Pendleton Hall West 212
Effect of Pathology on Cognitive Outcome after Anterior Temporal Lobectomy for Treatment of Epilepsy
Brigid E. Prayson

Crime or Custom? The Questionably Immoral Practice of Female Genital Mutilation
Shruthi V. Kumar

Women’s Rights in the Face of Acid Attacks: A Case Study of the Tensions between Relativism and Universalism
Alice Y. Liang

The Child is Father to the Man (short talks) Science Center 396
Preschool Peer Pairs: What Predicts Friendship Development?
Paula K. Yust

What Do You Want to Play? The Effect of Teacher Presence and Children’s Gender on Social Influence
Kathryn C. Goffin

The Relationship Between Altruism and Display Rules: Selflessness and Prosocial Tendencies in Preschool Children
Natalie E. Benjamin, Meredith G. Healy

Theory and Research on Freedom: Perspectives on Law, Feminism, and the Professions (panel discussion) Jewett Arts Center 452
Rachel Davis, Marilynn Willey, Xueyin Zhang

Three-College Collaboration Wintersession Program: “Consulting with Practically Green” (panel discussion) Jewett Arts Center 450
Benjamin Cardarelli (Babson), Victoria C. Rines, Carla The, Vikki Tse

China’s Search for Modernity: A View of Shanghai and Beijing (panel discussion) Founders Hall 126
Xiaolu Han, Kat Yung Keung, Irene C. Kuoork

Here: Honor Killings in the United States (film screening) Founders Hall 120
Sarah G. Trager
## Conference Planner

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation 1</th>
<th>Presentation 2</th>
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Please note that people will be leaving or entering the room between or even during presentations.
Frequent sources of support for student/faculty research:

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

Humanities

Chinese Today: Near and Afar
(panel discussion) Founders Hall 126

This panel discusses research topics that students in CHIN 231/331 pursued as part of the study of the linguistic, historical, cultural, and sociopolitical factors that shape our understanding of what constitutes the Chinese language. The course examined the various language families in China in terms of writing systems, phonetics, word and sentence structure, how and why these languages have changed, and the ongoing changes that are taking place in them. We report on linguistic trends in Chinese language use online as a result of censorship, gender in the Chinese language, the use of Mandarin in Asian-American cinema, linguistic fieldwork on the Hakka dialect, and Chinese as a foreign language in the U.S. In all, our reports concern the past, present, and future of the Chinese language from a global standpoint and how it influences and affects our daily lives.

Problems of Place: Judenplatz Memorial in Vienna
Cassandra Tavolarella ’13, Architecture

The Judenplatz Memorial in Vienna, built by Rachel Whiteread, is a contested monument to the memory of the Holocaust. Built on top of the ruins of a Jewish synagogue that was destroyed in the 15th century, the “Nameless Library” interrogates the collective memory and accessibility of Jewish history. The “Nameless Library” is situated in the Jewish quarter of Vienna, and is the only Holocaust memorial in Austria. Similar to a concrete bunker or mausoleum and lined with outward facing books, the “Nameless Library” dedicates itself to the anonymous victims, loss of culture, and knowledge.

Whose King? A Case Study on the Martin Luther King, Jr. National Memorial
Caitlin Greenhill Caldera ’14, Art History and Studio Art

A dream deferred twenty-seven years, the Martin Luther King, Jr. National Memorial on Washington, D.C.’s National Mall was finally erected by the MLK Memorial Foundation to commemorate the legacy of MLK, Jr. in 2011. Due to multiple government and corporate interventions, budgetary problems, and the MLK memorial foundation’s own foolish search for a ‘universal’ MLK, the memorial is not the realization of a dream but the execution of a colossal and controversial nightmare: a soviet-style social realist propaganda sculpture of superfluously enormous proportions that conveys the opposite of King’s ideologies.

Science & Technology

Breaking Bad: Drugs, Delivery, and Disease
(short talks) Pendleton Hall East 139

Two Methods of Synthesizing Novel Thiocarbonyl Agents for Drug-Resistant Mycobacterium Tuberculosis
Alexa Jackson ’13, Economics and Chemistry, Amelia S. Williams ’13, History

Each year, approximately 9 million new cases of tuberculosis are identified across the globe, predominantly in developing and emerging nations. [1]Even more concerning is the growing proportion of these cases caused by drug-resistant strains. In the extreme, a few patients have recently been diagnosed with strains of tuberculosis that are completely unresponsive to currently-available drug therapy, heightening the urgency of developing new pharmaceuticals
effective against drug-resistant strains. The thiocarbonyl moiety, present in several resistant strain therapies, is hypothesized to produce tuberculostatic activity. We endeavor to incorporate a thiocarbonyl into new tuberculostatic compounds via the thioamide or thiourea functional group. Alkyl-substituted thioamides were produced from substituted benzaldehydes and aromatic amines via a modified Willgerodt-Kindler reaction. Diphenyl thioamides were synthesized by nucleophilic attack of aniline derivatives on the electrophilic carbon of aryl isothiocyanates. Both series were synthesized in good yield and purity and show promising preliminary biological results (Funded by the Department of Chemistry and Howard Hughes Medical Institute).


The Synthesis and Evaluation of Residues 6-36 of Alpha-Synuclein
Madelyn P. Kallman ’13, Chemistry and Mathematics
ADVISOR: Julia Miwa, Chemistry
Parkinson’s disease is linked to the neuroprotein alpha-synuclein. Several factors, including certain gene mutations, will cause the protein to aggregate to neurotoxic oligomers, which damage and kill neurons. One of these mutations, A30P, causes an altered secondary structure from the wild type protein that enhances oligomerization. To characterize this structural shift, we focus on the region of the protein surrounding the mutation; we synthesized wild type and mutant fragments of alpha-synuclein containing residues 6-36, and examined their conformations using circular dichroism spectroscopy. With this work, we hope to understand further why alpha-synuclein aggregates and how to control or inhibit aggregation.

Tackling a Silent Disease: Determining Best Practices for Management of Childhood Stroke
Hayley E. Malkin ’13, Biological Chemistry
ADVISOR: Mala Radhakrishnan, Chemistry
Pediatric stroke is a leading cause of mortality and disability among children, yet few comprehensive studies focused on best practices for acute management have been conducted.

A stroke is defined as death of tissue, and can be caused by a variety of mechanisms including excessive blood clotting and hemorrhage. With an adviser from Boston Children’s Hospital and Wellesley College, I have been tackling this question from a clinical perspective. My project aims to determine the safety and efficacy of drug treatments in treatment of childhood stroke events. Data was collected retrospectively and systematically from patients referred to the Cerebrovascular Disorders and Stroke program at Boston Children’s Hospital for disease consultation and management. Our preliminary results corroborate those of previous studies, indicating that there are nuanced differences in outcome between three standard treatment strategies. These findings represent a step towards comprehensive categorization of safety and efficacy of treatments for childhood stroke.

Progress Towards the Synthesis of a Novel Electroactive Compound for Surface Modification of Gold Nanoparticles
Nicole A. Spiegelman ’13, Chemistry, Hong Zhang ’15, Undeclared
ADVISOR: Dora Carrio-Moniz, Chemistry
In recent years, scientific research has placed an emphasis on the nanoscale. Gold nanoparticles (AuNPs) are extremely small gold particles with a diameter on the scale of nanometers that have myriad applications in medicine, biosensing, and electronics. Recently, there has been an increased interest in developing methods aimed at linking two distinct AuNP populations. The Flynn lab is developing a novel electrochemical method to trigger the self-assembly of AuNPs. To maximize the use of electrochemistry, the AuNP populations should exhibit water-solubility. The Carrio-Moniz lab is working towards the synthesis of a novel thiolated compound that will be attached to AuNPs. This organic molecule incorporates several ethylene glycol units, which should enhance the water solubility of the respective AuNPs. The progress towards the synthesis of this novel sulfur-containing electroactive compound will be presented. (Research in collaboration with Professor Nolan Flynn, Chemistry, and supported by a Roberta Day Staley and Karl A. Staley Fund for Cancer-Related Research Award and a Eleanor R. Webster Prize in Chemistry).

High Impact Science on the Final Frontier
(Short talks) Science Center 104
Simple Impact Crater Morphometry: Distribution and Analysis of Martian Craters
Lynn M. Geiger ’13, Geosciences and Astronomy
ADVISOR: Wesley Watters, Astronomy
Impact craters, which are caused by meteorites, are the most widespread geological feature in the solar system, found everywhere, from planets to asteroids. On Earth, the atmosphere is too thick for smaller craters to form, so we have to look elsewhere to study them. With the implementation of new high-resolution stereo cameras in orbit around Mars, studying small craters is now possible. The focus of my research is taking these new data and finding impact craters to study simple crater shape distribution. My research combines morphometry statistics with physical data, to better understand how the underlying geology and surface environment of an impact site affects crater formation, crater morphology and the evolution of craters over time.

Circular Polarization and Incident Wavelength Independence in the Fresnel Rhomb
Wanyi Li ’16, Undeclared, Renee Lu ’15, English
ADVISOR: Theodore Ducas, Physics
Circularly polarized light has many applications ranging from investigations of atomic energy levels, minerals and biological materials to 3-D movies. In this presentation we will consider two methods of circularly polarizing light – using a quarter wave plate or a Fresnel rhomb – that depend on two very different physical mechanisms. We will describe the optical physics underlying each of these methods and present experimental results. Our work demonstrates the greater versatility of the Fresnel rhomb in its ability to operate over a significantly greater range of wavelengths than a quarter wave plate.

Optimizing Exoplanet Transit Observations and Analysis
Kirsten N. Blancato ’15, Astrophysics, and Anna V. Payne ’15, Undeclared
ADVISOR: Kim McLeod, Astronomy
We optimized exoplanet transit observing and analysis techniques with the 24'' telescope at Wellesley College and developed a Python-
based pipeline to fit the resulting light curves. We observed nine transit events and used the model fits to determine the physical properties of the star, the planet, and the planet’s orbit. Our best observations (on stars with m = 10 – 13) yielded mmag residuals and formal uncertainties on the transit midpoints of less than 1.5 minutes. With the machinery that we built, we can now undertake simultaneous observations with collaborators at other colleges to quantify the uncertainties in transit timing variations. (Sources in support of this project included Massachusetts Space Grant and Claudine Malone ’63 Summer Science Research Scholars Gift for our funding.)

**Re-defining the Birdbrain: Investigations of Learning and Memory in Songbirds**  
*Andrea J. Bae ’14 Neuroscience, Napim Chirathivat ’15, Undeclared, Houda G. Khalel ’16, Undeclared, Sina Lotfi ’13, Neuroscience and Philosophy, Ana K. Ortiz ’14, German Studies, Milena Radoman ’15 Undeclared, Sabiyya C. Raja ’15, Undeclared*  

**Advisor:** Sharon Gobes, Neuroscience

To adaptively interact with their environment, animals need to have the capacity to learn and acquire a memory of how they changed their behavior. Although the behavioral components of learning and memory have been well characterized, the neuronal changes that accompany such behaviors are less understood. Songbirds are a unique model system for the investigation of learning and memory in the brain because they provide a natural learning paradigm that is expressed under laboratory conditions. Male, juvenile songbirds learn their songs from a conspecific tutor during a ‘sensitive period,’ and the strength of this learning can be measured after the learning process has been completed. Because of similarities at the behavioral level between song learning and speech learning, the songbird is also a particularly good model for speech acquisition in humans. In the Gobes Lab, we investigate the cellular and synaptic changes that occur during song learning in both wakefulness and sleep through behavioral, immunocytochemical, and electron microscopy techniques. Sources of funding: Brachman Hoffman Fund, Patterson Summer Research Fellowship, Howard Hughes Medical Institute Summer Research Awards

**Sparkly Hats and Cookie Dough: Stories from Computer Security**  
*(panel discussion)* Science Center 278

Erin Davis ’15 Computer Science, Emily Erdman ’13, Neuroscience and Computer Science, Taili Feng ’13, Computer Science, Michelle N. Ferreira ’13, Computer Science, Margaret T. Ligon ’13, Computer Science

**Advisor:** Franklin Turbak, Computer Science

This fall, we took CS 342, Computer Security. As part of that course, we competed in a Capture the Flag competition, in which we had a computer with secrets on it, and we had to defend our secrets while stealing secrets from other teams. We also did significant final projects, investigating topics ranging from the security of Wordpress, to creating security frameworks, to drive-by downloads, to the security of CS student projects. We will discuss these projects and their broader implications.

**The Role of Low Energy Electrons in High Energy Radiolysis**  
*(panel discussion)* Science Center 396

Seiba M. Abdullahi ’15, Biological Chemistry, Mavis D. Boamah ’14, Chemistry and Mathematics, Nathalie Rivas ’15, Biological Chemistry, Katherine E. Shulenberger ’14, Chemistry, Audrey A. Tran ’15 Undeclared, Katherine D. Tran ’15, Undeclared

**Advisor:** Christopher ArumaInayagam, Chemistry

Our goal is to simulate processes that occur when high-energy cosmic rays interact with interstellar and cometary ices. The interactions of high-energy radiation, such as cosmic rays, with matter produce large numbers of low-energy secondary electrons, which are thought to initiate radiolysis reactions in the condensed phase. In addition to building a new ultrahigh vacuum chamber optimized for astrochemical studies, we are investigating the low-energy electron-induced condensed phase reactions of methanol (CH3OH), ammonia (NH3), and water (H2O). The results of experiments such as ours may provide a fundamental understanding of how complex molecules are synthesized in the interstellar medium and comets.

**Change the World**: Projects from Predictions Paradigms and Joules (PPJ) an Experimental Olin/Wellesley Transdisciplinary Course  
*(panel discussion)* Science Center 277

Ellen M. Bechtel ’14, Environmental Studies, Trevor Houton ’14, Engineering (Olin), Jared Kirschen ’13, Electrical and Computer Engineering (Olin), Emily L. Kurtz ’15, Mathematics, Larissa Little ’14, Engineering (Olin), Celeste Maisel ’14, Mechanical Engineering (Olin), Julius A. O’Donnell ’15, Physics, David Padlo ’15 Engineering (Olin), and Slater Victoroff ’15, Engineering (Olin)

**Advisors:** Daniel Brabander, Geosciences and Robert Martello, History of Science and Technology (Olin)

Last semester Professors Rob Martello (History of Science and Technology, Olin College) and Dan Brabander (Geosciences and Environmental Studies) offered a new course called Paradigms, Predictions and Joules: A Historical and Scientific Approach to Energy and the Environment (PPJ). This transdisciplinary course prioritized developing a transferable set of tools and attitudes (ranging from quantitative modeling to ethics) applicable to sustainability studies. In order to foster these outcomes, the professors created an open-ended “Change the World” assignment that encouraged strong personal (intrinsic) motivation and produced tangible impacts that extended course themes beyond the walls of the classroom. Following an in-class brainstorming session, teams of students self-organized and often chose to contribute their skills and efforts to more than one project. In this session, PPJ students will share their class presentations from the Change the World deliverables.

**Social Sciences**

**Political Action: Taking Charge for a Better Tomorrow**  
*(short talks)* Pendleton Hall West 212

**Community-Based Learning: A Tool for Social Change**

Jiezheng Wu ’13, Peace & Justice Studies and Political Science

**Advisor:** Kenneth Hawes, Education

This presentation is based on my honors thesis research, through which I explored the importance of community-based learning and its role in building stronger schools and better students.
I propose that education should go further and deeper than the statistics of test scores, towards creating a holistic environment where every student, teacher, parent, and community has a stake in the schooling experience, and becomes actively involved and committed to education and learning as a whole. In using case studies and data from the field work I have done in both the United States and Singapore, I aim to create a dialogue between what I have seen and experienced in the field with what is being discussed in the greater academic literature, to deepen the understanding of the salience of community-based learning in education.

**Practical Laboratories and Unfulfilled Dreams: A Comparative History of Urban Planning in Japan and Its Colonies**
Lin Davina Huang ’13, International Relations- History
**Advisor:** Yoshishia Matsuioka, History

My presentation explores Japan’s urban planning projects in the metropole and in its colonies of Hokkaido, Taiwan, Korea and Manchuria. By comparing the extent and nature of urban transformation in the homeland and its colonies, I argue that colonial cities in the Japanese empire experienced much more radical transformations. The colonies provided a vacant plane on which Japanese urban planners tested avant-garde planning concepts and engineered magnificent, high-modernist imperial designs. In other words, they became the practical laboratories and testing grounds for urban planners to fulfill their unfulfilled dreams in Japan.

**Elimination or Integration: An Ethnography and Analysis of Decriminalization of Sex Work in Kigali, Rwanda**
Julia A. Klaips ’14, Biological Chemistry
**Advisor:** Rosanna Hertz, Women’s and Gender Studies

In the context of post-genocide reconstruction, the Rwandan government has made immense strides forwards in the context of healthcare provision, especially in the field of HIV prevention. However, one community of Rwandans remains at particularly high risk: women who work in the sex industry. Given broad expert consensus on the policies best suited to deal with this problem, investigation into the social, political, and legal problems of providing effective treatment to this at-risk group can be, we hope, fruitful. Where best medical practice clashes with social mores, what challenges face policymakers, and to what extent can, or should, solutions be provided by non-governmental organizations? A situation of the epidemiological statistics within the context of the everyday experiences of healthcare providers and service users provides insight into the ongoing challenges and the need to tailor international advice to fit local circumstances.

**On the International Stage: U.S. Foreign Policy and Its Actors**
**(short talks) Pendleton Hall East 239**
**The Military: Personal Narratives of Veterans**
Kathryn E. Kenney ’13, Anthropology
**Advisor:** Deborah Matzner, Anthropology

Discussions of the military often seem to saturate the media. Their actions, budget, and policies serve as ample fodder for news outlets. Despite the military’s active presence on the national stage we often overlook or forget the individuals who comprise it and instead focus on the institution. In my research I have worked with veterans to collect their stories, impressions, and memories of their time in the military. Participant’s timelines range from World War II to Operation Enduring Freedom. Their stories not only track the shifting attitudes towards the military but also highlight individual relationships with one of our nation’s largest institutions.

**American Foreign Policy and Presidential Rhetoric in the Middle East: Strategic and Ideological Interests in the Aftermath of 9/11**
Kim A. Quaranello ’13, Political Science
**Advisor:** Paul MacDonald, Political Science

US foreign policy in the Middle East consists of a complex interplay between strategic and ideological interests that dictate American involvement in the region. Although many scholars argue that the terrorist attacks on September 11, 2001 profoundly altered the trajectory of US foreign policy, others state that the policies pursued were consistent with the American liberal tradition. My research evaluates these contrasting theories and determines the importance of strategic and ideological interests from the 9/11 terrorist attacks to the declaration of war in Iraq in March of 2003. I will analyze President Bush’s foreign policy rhetoric within this time frame and present data collected using content analysis methods to quantify US foreign policy objectives post-9/11. This research reveals the implications of American engagement in the Middle East and may be utilized as a point of comparison for recent US foreign policy decisions in response to the Arab revolutions.

**Being a “Good Neighbor”: The United States’ Involvement in General Pinochet’s Coup of 1973**
Rachel E. Cherny ’13, History and Classical Civilization
**Advisor:** Ryan Quintana, History

On September 11, 1973, General Augusto Pinochet Ugarte led the coup that ousted the first-ever elected Marxist president, Salvador Allende. The coup was fueled by Anti-communist support from the U.S., an injured Chilean economy, and an extreme class polarization present at the time. Once in power, Pinochet used his military strength to rule the country as an authoritarian dictator for 16 years. During that time, Pinochet committed countless human rights violations by torturing those he deemed to oppose his regime.

This Independent Study seeks to examine the exact relationship between the U.S. government and the Chilean government from the late 1960s through the coup of 1973 and its immediate after effects. Many historians attribute the U.S. involvement in the coup to neoimperialism, the Red Scare, or a mixture of both. By mainly examining primary and Intelligence sources, the purpose of and exact involvement of the U.S. should be illuminated.

**Constructions of Gender and Notions of Belonging**
**(panel discussion) Jewett Arts Center 454**

**Narratives of Women’s Bodies During Childbirth: Biomedical vs. Holistic Models**
Jane Adkins ’13, Women’s and Gender Studies
**Advisor:** Irene Mata, Women’s and Gender Studies and Rosanna Hertz, Women’s and Gender Studies

Childbirth is one of life's landmark experiences for many women: a physiological feat marking the beginning of motherhood. When giving birth, women integrate the philosophies and teachings of their healthcare providers to understand their own internal experiences. Healthcare providers have constructed various narratives of women and their bodies during childbirth, and these narratives directly manifest themselves during the birth experience.
This presentation will compare two major frameworks for understanding childbirth: the holistic model, as generally practiced by midwives, and the biomedical model, as generally practiced by obstetricians. I will examine this issue from a gender, race, and class perspective, considering how intersecting social identities and disparities interact to influence interactions between women and care providers.

Familiarity and Freedom: Conceptions of Home by Queer International Students of Chinese Descent
Eman Wei-Hsin Ma ’13, Psychology and Women’s and Gender Studies

ADVISOR: Irene Mata, Women’s and Gender Studies and Rosanna Hertz, Women’s and Gender Studies

This project focuses on my ethnographic research project on Gay/ Lesbian international students of Chinese descent at Wellesley College. I sought to identify how these students conceived of “home,” “family,” and “coming out.” I had a particular interest in disrupting and complicating the mainstream narrative of “coming out” from an oppressive home space into a liberated queer space, especially in the context of a Chinese student choosing to attend Wellesley College. One narrative I reference focuses on the importance of being “shou,” or familiar, with someone, and how “coming out” is not really necessary when you are “shou” with someone. Another narrative emphasizes the idea of “freedom,” and how departure from “home” is painted as necessary to achieve this “freedom.” Both of these narratives conceive of a queerness that is inseparable from “Chinese-ness”; the meaning of the search for a “home” and a sense of belonging shifts depending on context.

Temporary Families: Living In and Out of the Foster Care System
Catalina Santos ’13, Women’s and Gender Studies

ADVISOR: Irene Mata, Women’s and Gender Studies and Rosanna Hertz, Women’s and Gender Studies

As of 2010, there are approximately 400,000 children in the foster care system in the United States. Children are placed in foster care for various reasons including abuse, neglect, and abandonment. Over 75 percent of these children are placed under government care and into private homes with foster families. Approximately equal numbers of boys and girls are placed in foster care for varying lengths of time. 70 percent of youth are in the system for less than two years. About half are reunited with a parent (but often return to the system) and the rest are adopted, emancipated or live with another relative. The race, religion, and social class of the host families in comparison to the children who enter the system will be discussed. An analysis of government reports, demographic data and scholarly work will show how the foster system is transforming families.

The Construction of Gender Relations in the American Automotive Industry Consumer Advertisements
Roxana Mir ’15, Women’s and Gender Studies and Neuroscience

ADVISOR: Irene Mata, Women’s and Gender Studies and Rosanna Hertz, Women’s and Gender Studies

This study focuses on consumer advertising in the automotive industry as it relates to gender. A review of automotive advertisements from the 1950s reveals that they primarily showcased women’s role in the domestic sphere, which inevitably portrayed women as being subservient or secondary to men. In comparison, modern commercial advertisements are more sexualized and often focus on the physique of the woman’s body as opposed to the product itself. The aim of this study is to explore whether the ads from the 21st century are more reflective of the evolution of women’s role in the society or if they reiterate the same stereotypical narrative under the guise of sexual liberation. Furthermore, this study also aims to examine gay and lesbian advertising to see whether or not this form of advertisement upholds the masculine power complex inherent in gender relations through the redefinition of heteronormativity.

Cultural Crossroads: Redefining the Asian American Experience
(partial discussion) Pendleton Hall West 116

Tiffany K. Chan ’15, Biological Sciences, Angela Y. Gu ’15, Undeclared, Lauren M. Richmond ’14, Economics and Art History, Lindsey L. Tang ’15, Undeclared, Grace D. Zhao ’15, Economics and American Studies

ADVISOR: Yoon Lee, American Studies and English

What is the Asian American experience? Today’s media shapes the way we perceive Asian Americans and this community’s collective and individual identities. Media can both perpetuate age-old stereotypes and encourage radical thinking in the Asian American community. As a result, modern media proves to be both an oppressive burden and an outlet for expression for the Asian American community. Using a variety of media sources, we analyze the modern Asian American response to the model minority myth, the portrayal of Asian American women, and stand-up comedy to recognize the internal diversity of this racial minority and the dangers it faces in modern American society.

Perspectives on Social Issues II: Research from the Wellesley College Freedom Project
(panel discussion) Jewett Arts Center 452

Free Market Solutions to Inhumane Prison Conditions: The Prison Voucher System
Sabrina Giglio ’15, American Studies

ADVISOR: Thomas Cushman, Sociology

Generally speaking, American prison conditions are terrible. In times of economic crisis, no elected officials want to sacrifice their positions by providing extra funding for those incarcerated in lieu of providing resources for their law-abiding constituents. How can we improve daily life for the more than 6 million people behind bars? Libertarians have proposed solutions based on free-market capitalism. One of the most prominent of these is a voucher system. Upon sentencing, prisoners are given vouchers and are allowed to choose from an array of prisons. The system will create competition among the prisons, and thus force them to improve conditions if they want to attract prisoners (or “customers”, in this example). My presentation focuses on the voucher system as a means to improve incarceration system that is grounded in free-market and libertarian values.

Drug Wars, Drug Laws, and The American Prison
Melissa Clark ’14, Media Arts & Sciences and English

ADVISOR: Thomas Cushman, Sociology

There are over 6 million people incarcerated in American prisons. Debates on prison conditions hinge around reducing the numbers of prisoners. Many prisoners are incarcerated for using drugs and not engaging in the more serious crime of drug trafficking. Libertarians have proposed that the prison problem can be ameliorated significantly by reforming drug laws in the US. This presentation outlines a libertarian approach to the war on drugs, the reform of American drug laws, and their effect on prison conditions in the United States.
Libertarian Perspectives on the Legalization and Regulation of Drugs

Bailey Desmond ’13, Economics and Philosophy  
ADVISOR: Thomas Cushman, Sociology

This research examines whether policies and practices for drug legalization in the United States are consistent with libertarian ideals. For example, is it better for current marijuana laws to be loosely enforced while the industry is largely unregulated, or is complete legalization and further regulation more respectful of personal freedoms? I will examine this question through different libertarian lenses. Which scenario is economically more free. Which scenario is more respectful of humans’ natural liberties? Which of these two is preferable in today’s America? The analysis of drug policy will illuminate a tension central to contemporary American political discussion: a tug-of-war in which citizens try to prioritize their economic freedoms over their civil liberties, and vice versa.

On Silencing, Free Speech, and Harm

( Theft of services)  
Chloe E. Emerson ’15, Undeclared  
ADVISOR: Ilana Z. Walder-Biesanz ’13, Systems Engineering (Olin)

Some feminists claim that pornography silences women and thereby violates women’s right to free speech. In this presentation, we focus on a particular account of silencing and we raise a challenge to that account. In particular, we offer a case, the drowning case, that appears to satisfy the definition of silencing but this result is counter intuitive. Thus, either the account must be modified (to avoid this result) or it must be shown that the drowning case is an instance of silencing after all.

Humanities

Global Asia

( short talks) Pendleton Hall East 139

Confucianism in East Asia

Yu Zhou ’16, Undeclared  
ADVISOR: Ellen Widmer, East Asian Languages & Literatures

Chinese culture has exerted an enormous impact on other East Asian countries throughout history. Confucianism is one of the most striking Chinese influences among East Asia. This presentation will focus on the spread of Confucianism from China to Japan and Korea, and how Confucianism is demonstrated through Chinese, Japanese, and Korean literature. We will introduce the origin and basic ideas of Confucianism in China, and the development of Neo-Confucianism in Korea and Japan in the 17th and 18th century. By comparing the traditional literature novels in China, Japan and Korea, this presentation will give a general analysis of the similarities and differences of the influence of Confucianism in these three East Asian countries.

Tulsidas’ Ramcharitmanas: Translating Medieval Hindu Devotional Poetry

Elin R. Nelson ’13, South Asian Studies and Comparative Literature  
ADVISOR: Mary McGowan, Philosophy

While living in Varanasi, India, I discovered the Awadhi poet Tulsidas’ Ramcharitmanas, a popular retelling of the Ramayana, the Hindu epic tale of Prince Rama’s adventures. People often quote, recite, and perform scenes from the poem — once I heard it being recited for over twenty four hours to bless a newly built home. Most memorably the Ramcharitmanas is performed during Ramillas (reenactments of the story of Rama) which are often timed to end on the festival of Vijayadashami to celebrate the victory of Lord Rama over the demon Ravana. This fall, I spent the semester translating excerpts from Ramcharitmanas, learning the language Awadhi and analyzing the metrical structures of the poem. I looked specifically at the character of Valmiki, a famous Sanskrit author of one of the most influential versions of the Ramayana, and how he interacts with Rama during Rama’s exile in the Dandakaranya Forest.

An Ideal Woman: The Masochistic Pursuit of Feminine Beauty in the works of Junichiro Tanizaki

Shelby B. Robertson ’13, Japanese Languages and Literatures  
ADVISOR: Koichi Hagimoto, Spanish

In his novels and short stories Japanese writer Junichiro Tanizaki (b. 1886–d.1965) explores the theme of man’s desire for self destruction and self torture through his heroes’ masochistic pursuit of beautiful but cruel women. Tanizaki’s protagonists deliberately draw out the wicked nature of the objects of their desire, molding them into femme fatales who eventually sadistically persecute their creator. The usually detached protagonists make a distorted attempt at correcting their feelings of alienation from society through the sense of purpose and passion provided by their pursuit of an unattainable feminine beauty.

Who Are You, Who Am I?: The Role of Otherness in Asian Identity Formation in Latin America

Victoria M. Nguyen’13, Spanish  
ADVISOR: Koichi Hagimoto, Spanish

There have been major Asian diasporas to Latin America throughout the 20th and 21st centuries; however, the Asian immigrants’ journeys still remain one of the lesser known subjects of both Latin American and Asian history. This narrative’s importance should not be downplayed since it reveals how otherness plays a crucial role in cross-cultural relations, community prosperity, and the development of cultural customs. Otherness has played a significant role in prejudice towards Asians in Latin America, the formation of “Nikkei” culture, the dynamics between two generations of Asian-Latin Americans, and the development of both Asian and Latin American identity. This population may be very specific, but the implications of otherness are universal as they influence how we define others and how we define ourselves.

Food and Travel

( short talks) Jewett Arts Center 450

Labyrinth, the Shape of the Modern Mind: Kafka, Borges and Auster

Jiwon Hahn ’13, Comparative Literature  
ADVISOR: Lawrence Rosenberg, English

Since Daedalus built the labyrinth to imprison the Minotaur, the concept of labyrinth has forever charmed literature.
Labyrinth is a puzzle composed by the writer and handed over to the reader. Yet the labyrinth by definition defies anyone’s full comprehension/peretration, so that even the Daedalus-writer is lost within his own creation. As the metaphor of both mind and the world, the labyrinth also blurs the boundary between the external and the internal. Taking the literary motif of labyrinth as a space of comparison, I am looking into the fiction of Franz Kafka, Jorge Luis Borges and Paul Auster. The thematic concerns of the study include meta-fiction, authorship, mental and physical representation of space and the experience inside a labyrinth compared with that of wandering in the city (flânerie). The three writers’ explicit and implicit usage of the labyrinth in their fiction contributes to their penetrating and powerful depiction of the modern mind.

Home and Away: Questions of Travel in John Donne and Andrew Marvell
Gabrielle C. Linnell ’13, Medieval/Renaissance Studies
ADVISOR: Sarah Wall-Randell, English
In 17th-century England, descriptions of the cosmos were in flux. Explorers, immigrants and colonists were re-defining the global map; local surveyors and cartographers were re-fixing the boundaries of villages and hometowns; early scientists were re-discovering the human body, calling into question older conceptions of how the universe functioned, and humankind within it. Examining poems of love, politics, faith and real estate, this project compares and contrasts John Donne and Andrew Marvell, two distinct and masterful poets, in their creation of geographical metaphorism and reactive space within their literary works to offer a microcosmic portrait of the world. (Research supported by the Jerome A. Schiff Fellowship.)

Mad Funny: Representing Madness in the 18th Century
Christina J. Hsieh ’13, English
ADVISOR: James Noggle, English
The Age of Reason saw frequent deployment of madness as a literary device and subject in parody and comic genres. Charlotte Lennox’s novel The Female Quixote, a parody of Defoe’s Don Quixote, cautions against the dogmatic reasoning that insists on universal adherence to an individual standard. Lennox emphasizes the redemptive potential of reciprocal moral sentiment and its power to transcend the limitations of thought and language. In contrast, Jonathan Swift remains deeply troubled by the instability of language and academic theory as corruptions of rationality. Swift’s A Tale of a Tub and A Digression Concerning Madness convey the subjectivity of madness through a highly idiosyncratic style of exposition. Nonetheless, Lennox and Swift share a suspicion of the kind of rigidity of thought that aspires to rationality but verges on madness.

A Comparison of Food Still Lifes by Pieter Claesz and Jean-Baptiste-Siméon Chardin
Danielle R. Ezor ’13, Art History and Studio Art
ADVISOR: Margaret Carroll, Art
Still-life paintings have long been relegated to the lowest levels of painting in art theory and in contemporary discussion. Yet the painters Pieter Claesz and Jean-Baptiste-Siméon Chardin gained fame as still-life artists in their own lifetimes. In seventeenth-century Haarlem, Claesz developed the famed monochrome breakfast still life, known for humble and natural depictions of standard Dutch meals. Continuing in Claesz’s tradition, Chardin painted modest, yet dynamic, depictions of simple French meals in the 1750s and 1760s. Both artists not only derived aspects of their work, such as brushstroke, composition, and color, from the famous Antwerp painter, Frans Snyders, but they also became famous for their still lifes during similar socio-economic periods in their respective societies. Their individual styles and depictions of simple meals garnered surprising interest and adoration for still life from the public in their own lifetimes.

Wellesley Chamber Music Society Long Performance: Exploration and Performance of Antonin Dvorak Piano Quintet No. 2 in A major, Op. 81
(long performance) Jewett Arts Center Auditorium
Graeme L. Durovich ’15, Undeclared, Natalie J. Griffin ’14, Economics, Serena Liu ’13, Biological Chemistry, Maria Nikitin ’13, Art History, Audrey M. Wozniak ’14, Music
ADVISOR: David Russell, Music
Audrey Wozniak ’14 and Natalie Griffin ’14, violins, Graeme Durovich ’15, viola, Serena Liu ’13, cello, and Masha Nikitin ’13, piano will perform Antonin Dvorak’s Piano Quintet No. 2 in A major, Op. 81 as a culmination of a year-long project in Wellesley’s Chamber Music Society. Interspersed within the performance will be presentations on Dvorak himself and on this seminal example of this much-beloved musical genre. The topics will include Dvorak’s life and his role in Czech nationalism, the use of folk motifs in his music, the influence of his relocation to America on his oeuvre, and the historical context and formal analysis of the piano quintet.

Science and Technology
Green Means Go: Time for Environmental Action
(short talks) Pendleton Hall West 116
To Sink or Swim: Explaining U.S. Coastal Sea Level Rise Policy
Kelly A. Mercer ’13, Environmental Studies
ADVISOR: Elizabeth Desombre, Environmental Studies
Hurricane Sandy foreshadowed the dire consequences of sea level rise over the next century by demonstrating how ruthless the ocean could be. As global climate change causes sea levels to rise, those living in coastal regions face devastating harm. In the absence of a federal regulation, coastal states must elect to create policy to protect their shorelines. My senior thesis analyses what determines whether coastal states pass policy in preparation for sea level rise. I look at the factors such as political history, economy, population, and physical coastline to understand what drives coastal policy. My research explains what states will sink and which will swim as sea levels rise. (Research supported by a Schiff Fellowship)

The East-West Corridor: An Analysis of Nonviolent Direct Action at Work
Molly R. Cyr ’13, French and Peace and Justice Studies
ADVISOR: Cattia Confortini, Peace Studies
The national construction company Cianbro recently submitted a proposal to the Maine State government entitled “The East-West Corridor”. The proposal details a massive construction project that would create an energy corridor bisecting Maine. This corridor would be used to transport tar sands, crude oil and out-of-state trash from the Midwest and Western Canada to Eastern Canada. Environmental and community concerns abound as the plans for the corridor...
are vague. The effects of the East-West corridor on the environment and human beings could be severe; the large scale of the project interrupts wildlife migration patterns, private property and, potentially, state park land. I will research the proposal, interview local people, state officials and activists and compile a coherent project that will discuss the components of the proposed energy corridor. I will pay particular attention to nonviolent direct action tactics employed by environmental groups in response to the construction of the corridor.

Environmental Conservation and the Struggle for Environmental Justice and Sustainable Development in Vieques, Puerto Rico

Ada P. Smith ’13, Anthropology and Environmental Studies
ADVISOR: Deborah Matzner, Anthropology

I hope to tell the story of the contested landscape of a former military training base in Vieques, a small island municipality of Puerto Rico. Military occupation on the island from 1940 until 2003 led to serious environmental and economic devastation. In 2003, the Navy gave two-thirds of the island to U.S. Fish and Wildlife. In effect, toxic wasteland is now under “conservation” where clean-up is impossible given its status as a wildlife sanctuary. This paradox has been kept out of local dialogue and has provided popular media with a platform to dub Vieques as an untouched gem of the Caribbean.

Environmental Policy in the Bag: What Plastic Bag Policies Teach Us about How to Make Successful Environmental Policy and Change Behavior

Katherine A. Corcoran ’15, Environmental Studies
ADVISOR: Elizabeth DeSombre, Environmental Studies

Single use plastic bags have become a regular convenience at grocery stores in recent decades, quickly replacing paper bags. These plastic bags now nag at us in many ways, environmentally and societally. Plastic bags consist mainly of fossil fuels petroleum and natural gas, put tons of waste into landfills, and produce lots of ugly litter that chokes marine life and clogs drainage systems, among other problems. Every member of society pays in some way for the costs that stem from plastic bags. Thus, an array of cities, states, and countries has implemented policy directed at reducing and eliminating bag use, mainly by changing citizen’s behavior. The successes and failures of these policies show interesting trends about what makes for good environmental policy and what doesn’t. (Research supported by the Sophomore Early Research Program)

Seeing is Believing: Vision and Optics

(short talks) Science Center 396

Binocular Stereopsis in Areas V2, V3, and V3A of the Macaque Monkey

Erin M. Yeagle ’13, Neuroscience
ADVISOR: Bevil Conway, Neuroscience

Stereopsis is a binocular cue to depth, calculated using the disparity between images projected on each retina. In the 1960s, Hubel and Wiesel identified neurons selective for this disparity in macaque monkeys, but a full account of the work was never published: the cells lay in “Area 18,” a region whose organization was then poorly understood. Using functional magnetic resonance imaging (fMRI), we generated an atlas of macaque visual areas that we aligned with histological sections from Hubel and Wiesel’s experiments on stereopsis. Collaborating with Hubel and Wiesel and guided by their laboratory notes, we located most of their original recording sites, allowing us to place their findings in new context with contemporary results. (Research supported by the National Science Foundation and a Jerome A. Schiff Fellowship Honorable Mention.)

What Is One Plus One? Perceiving Asymmetrical Facial Expressions of Emotions

Katherine E. Limoncelli ’14, Psychology
ADVISOR: Paul Wink, Psychology

The study of human facial expressions explores how people recognize and interpret symmetrical and asymmetrical emotions. Asymmetrical facial expressions result from brain asymmetry, where the left and right brain hemispheres work both together, as well as separately, in terms of creating, recognizing, and ultimately interpreting particular emotional displays. In this study, four synthetic faces (2 female and 2 male “actors”) encoded happiness, sadness, or were left in a neutral state. The right and left halves of the faces were combined to create all 9 possible variants per actor and 36 faces total. All faces were presented on a computer and participants had to rate either discrete emotions (e.g., happiness, sadness, anger, etc.) or how the expressions relate to underlying affective dimensions (valence, arousal). The focus of the study is on whether the manipulation of the facial halves for happiness, sadness, and neutrality leads to the perception of different emotional states.

Assessing the Morphology and the Viability of Engineered Tissue with Combined High Resolution Optical Imaging - Raman Spectroscopy

Laura Fandino ’14, Biological Sciences
ADVISOR: Michelle LaBonte, Biological Sciences

Assessing the morphology and viability of tissue constructs is key to developing an effective way to engineer tissue for transplantation. At present the production of engineered tissue requires the concurrent production of two identical transplants. One transplant is used for destructive quality control and the second one is implanted into the patient. Ideally, the non-invasive characterization of such tissue engineering samples would allow one transplant sample to be both tested and implanted. Here we present a multimodal approach for non-destructive characterization of tissue constructs that assesses morphology through Optical Coherence Microscopy (OCM) and functionality through Raman Spectroscopy. This promising technology is likely to contribute to successful and economical clinical applications of tissue grafts.

The Detection and Representation of Foreground vs. Background Objects

Da In Kim ’13, Neuroscience and Computer Science
ADVISOR: Ellen Hildreth, Computer Science

People need to perceive depth to understand the three-dimensional structure of a scene and to gauge the distance between objects. One important visual cue for perceiving depth is stereo. It is especially important to distinguish between foreground and background objects in the analysis of a scene. We reach first for objects in the foreground and recognize objects more easily when they appear in front. In my thesis, I conducted perceptual experiments that show that the human visual system analyzes foreground objects more quickly and accurately than background objects, when using stereo to perceive depth. I also developed a computer algorithm to analyze 3-D scene structure from stereo images, incorporating this knowledge that people process foreground and background
objects differently. Using a multi-resolution approach that processes foreground objects at a higher resolution, this algorithm may reduce the computational resources needed to perform object segmentation without losing essential information about scene structure.

**App Inventor Development at Wellesley** (panel discussion) Founders Hall 126
Karishma Chadha '14 Computer Science, Erin L. Davis ’15, Computer Science, Emily L. Erdman ’13, Neuroscience and Computer Science, Johanna L. Okerlund ’14, Computer Science and Mathematics

**ADVISOR:** Franklyn Turbak, Computer Science

App Inventor is an online blocks-based programming environment open to the public where anyone can easily create mobile apps for Android phones. The drag and drop interface makes it accessible even to people with little or no programming experience. As members of the App Inventor development team, we are working to make this product better and will be discussing our individual App Inventor development projects: blocks to text and text to block conversion to allow instructors to read students’ more extensive programs and more advanced users to program faster, using OAuth and POST to allow users to post pictures from their phones to various photo sharing sites on the web, and processing data from users’ projects to learn how people use App Inventor as a programming environment and as a teaching tool.

**Perspectives on Public Health, Patient Access and Disease: from Accra to Boston** (panel discussion) Pendleton Hall East 239
Camylle J. Fleming ’14, Women’s & Gender Studies, Alexandra Grzywna ’14, English, Shikah Kofie ’14, Women’s & Gender Studies and Africana Studies, Blair L. Uhlig ’14, Classical Civilization and Health and Society

**ADVISOR:** Donna Patterson

This panel reflects some of the research projects conducted in the fall 2012 section of Health, Medical Professionals, and the Body in the African Diaspora. Ali Grzywna examines the intersections of syncretic religious traditions on Boston’s Haitian immigrant population. Blair Uhlig explores how negative sub-narratives influence black motherhood. Shikah Kofie examines the impact of glaucoma on Ghana’s economic development. Camylle Fleming argues that many anti-obesity campaigns are incorrectly responding to high-risk populations. Collectively, these papers begin to explore some of the issues that impact African-descended populations in Africa and the Americas.

**Modeling the World, One Byte at a Time** (panel discussion) Founders Hall 120
Raisa D. Antwi ’13, Mathematics, Jacquelyn E. Blum ’14, Chemistry, Connie Chen ’15, Undeclared, Amelia B. Kreienkamp ’13, Chemistry, Lucy Y. Liu ’13, Chemistry, Helena W. Qi ’14, Chemical Physics, Ying Yi Zhang ’13, Economics and Chemistry

**ADVISOR:** Mala Radhakrishnan, Chemistry

Can a computer byte its way into the living world? The Radhakrishnan laboratory uses computational methods to investigate problems of biological and theoretical significance. Many of our projects focus on understanding the electrostatic determinants of protein binding, which can lead to improved drug design. Other projects aim to improve therapeutic treatments for diseases such as HIV via a computational study of patterns of drug resistance. Finally, another study focuses on modeling new, unprecedented molecules like the newly developed nanocar. Taken together, our work exemplifies the versatility of computational chemistry in investigating the world around us.

**Role of PATL in Plant Vascular Development** (panel discussion) Science Center 278
Angela C. Ai ’15, Biological Chemistry, Emma M. Britain ’13, Biological Sciences, Nevatha Mathialagen ’15, Anthropology, Eliza Rackaityte ’13, Biological Sciences

**ADVISOR:** T. Kaye Peterman, Biological Sciences

The plant vascular system accomplishes an incredible feat of carrying water and nutrients, sometimes for hundreds of kilometers. Vascular patterns must be rigid enough to supply the organism with vital water and nutrients, but also flexible enough to account for environmental changes. This self-assembling network begins to lay the groundwork during early embryogenesis when the embryo is patterned with procambial cells. The coordination of this replicable, yet adaptable pattern de novo in each leaf is associated with auxin hormone domains which predict the procambial cell differentiation.

**Social Sciences**

**Truth, Reconciliation, and Holding on to Identity** (short talks) Pendleton Hall West 212

**Personalizing Justice: Beyond the Chambers of the ICTY to the People of Sanski Most**
Kathleen A. Sprague ’13, Anthropology

**ADVISOR:** Anastasia Karakasidou, Anthropology

My research focuses on the efficacy of the International Criminal Tribunal of the Former Yugoslavia (ICTY), a judicial mechanism established in The Hague in response to the mass atrocities committed throughout the Balkans in the 1990s. Based on the ethnographic fieldwork I conducted in Sanski Most, a small town in northwestern Bosnia, my research explores residents’ perceptions of justice following the Yugoslav wars and their overlap as well as disjuncture from Western priorities and initiatives. More broadly it hovers at the intersection of legal anthropology and human rights. While my research is founded soundly in anthropological methodology and literature, I also utilize insights from other disciplines in order to contribute to the multidisciplinary discourse surrounding transitional justice.

**The Formation of Tibetan National Identity in Diaspora**
Tenzin Y. Dongchung ’13, Peace and Justice Studies

**ADVISOR:** C. Pat Giersch, History

I focus on understanding the formation of Tibetan national identity in diaspora. Through reference to anthropological literature as well as my own interviews, I specifically study the impact of a) the physical dislocation of Tibetans to India, b) the establishment of exclusive Tibetan schools in India, and c) dynamics of exile politics on the Tibetan people’s consciousness as a
nation’s group. My interview subjects are first generation Tibetans who studied at the Tibetan schools and eventually helped to build and maintain the diaspora institutions. Overall, I explore the themes of nationalism, nation-state and identity formation.

**Imperialism, Male Heroism, and Secret Worlds: Understanding the Dynamics of Gender and Dominance in Conrad’s Heart of Darkness**

(PANEL DISCUSSION) PENDLETON HALL WEST 117

Laura B. Mayron ’16, Undeclared, Emma D. Page ’16, Undeclared, Celina C. Reyes ’16, Undeclared

ADVISOR: Yoon Lee, English

Taking place at the height of British imperialism, Joseph Conrad’s Heart of Darkness explores various relationships between aggressor and victim. As Marlow journeys into the depths of the Congo, he discovers both the violent realities of colonization, and the mental deterioration of the mysterious, god-like Kurtz. Meanwhile, the story also addresses the power dynamics of gender in the late 19th century. Conrad simultaneously allows Marlow to exclude women from the secret-sharing process, while providing a means for women to gain access to the story by way of the frame narrator. However, within the frame story, the women whom Marlow meets along his journey serve as gatekeepers to other, secret world--worlds that Marlow cannot access, given his own prejudice. Linking ideas of imperialism, dominance, and secrecy, our papers examine the various interpretations of “truth” in the novella, as well as who has access to them, and why.


(PANEL DISCUSSION) SCIENCE CENTER 277

Chloe Breider ’15, Economics, Kalina Deng ’14, Philosophy, Mallika Govindan ’15, Biological Sciences, Diego Hernandez ’13, Business Management and Economics (Babson), Alex Kaumeyer ’13, Management-Finance/Economics (Babson), Prerana Nanda ’14, Economics, Jenna Russo ’14, Spanish and Philosophy, Jeff Stout ’14, Business Management and Economics (Babson)

ADVISOR: Caitrin Lynch, Anthropology (Olin)

During spring 2013, five students each from Wellesley, Babson, and Olin were invited as Fellows for “Just Business? Moral Responsibility in a Global Economy,” a seminar series funded by a BOW Mellon Fund grant. Led by seven BOW faculty/staff, the series culminates in an April 27 summit for the BOW community. In cross-campus teams the students are developing digital stories on topics including Caribbean tourism, Mexican-U.S. immigration, and the global diamond industry. "Just Business" poses questions including: What difficulties arise in tracing the path of a product from producer to consumer? How can global corporations take responsibility for the environmental effects of their operations? Is there a conflict between the imperatives to make a profit and to serve the social good? Is it morally wrong to trade with countries that do not guarantee core labor rights? Should you buy that fair trade coffee or t-shirt?

**Cultural Universalism, Cultural Relativism and Minimal Morality: Ethnographic Case Studies**

(PANEL DISCUSSION)

JEWETT ARTS CENTER 454

**Overlapping Standards: The Banning of the Veil in France**

Pauline Day ’16, Undeclared

ADVISORS: Inela Selimovic, Spanish and Thomas Cushman, Sociology

In September 2010, President Sarkozy of France became heralded and hatred after the passage of a law prohibiting the wearing in public of clothing covering the face, including burqas and niqabs. The law sparked a debate, in which both sides, the French government, and the Muslim community, have claimed to be operating under the principles of cultural universalism and cultural relativism. This case in France illustrates an ongoing tension between, on the one hand, universalist principles of freedom of expression and the state’s equal protection of citizens and, on the other hand, the claims that people have a right to practice their culture. For human rights organizers, the question becomes is it possible to ever reconcile this tension, and if so, how can you begin to practically do so?

**Honor Killings and Human Rights: Reconciling Competing Cultural Values in the International Community**

Adeline Lee ’16, Undeclared

ADVISORS: Professor Inela Selimovic, Spanish and Professor Thomas Cushman, Sociology

From a sociological standpoint, honor killings are a means for the restoration of societal equilibrium after a family’s honor has been stained by sexual impropriety. Honor killing is also a cultural practice that extinguishes an individual’s right to life in order to protect the collective identity and rights of a group. This presentation explores traditional notions of honor and dignity in relation to broader universalism and cultural relativism. This case in France illustrates an ongoing tension between, on the one hand, universalist principles of freedom of expression and the state’s equal protection of citizens and, on the other hand, the claims that people have a right to practice their culture. For human rights organizers, the question becomes is it possible to ever reconcile this tension, and if so, how can you begin to practically do so?
Cultural Traditions versus Human Rights: The Case of Uganda’s Anti-Gay Bill

Samantha Spiga ’13, Political Science
Advisors: Inela Selimovic, Spanish and Thomas Cashman, Sociology

In 2012, the US Secretary of State, Hillary Clinton, spoke to the United Nations in Geneva. In her speech, she advocated for the rights of the LGBT community, stating that gay rights and human rights are one in the same. Clinton’s speech came soon after the media uproar regarding Uganda’s proposed Anti-Gay Bill. With punishments ranging from a year in prison to perhaps even the death penalty, the proposed Anti-Gay bill would infringe on African peoples’ human rights. Same-sex relations are illegal in most African countries as well as in many Western countries, a fact which indicates that there are strong cultural traditions at work that govern diverse forms of human sexuality. Many have pointed to religious and cultural arguments to support Uganda’s proposed bill. However, an immense international backlash from the human rights community has put these issues in the spotlight. This presentation will focus on the tension between respecting cultural traditions and ensuring the protection of individuals’ basic human rights.

11am–12:10pm

Humanities

The Search for Self Across Continents

(short talks) Pendleton Hall East 339
You Can’t Go Home Again: A study of Colonial Impact on Nigerian Literature through the Works of Chinua Achebe and Wole Soyinka

Clara S. Brodie ’13, English
Advisor: Margery Sabin, English

My project is, in briefest terms, an examination of Chinua Achebe and Wole Soyinka as colonial and postcolonial Nigerian writers. Through my reading and analysis, I am endeavoring to gain an understanding of how both writers convey the irrevocable consequences of colonialism through their literature and how they represent various aspects of the hybrid identity that British influence on their cultures has created.

Forging a New Russian Hero: Post-Soviet Science Fiction and Its Moral Objectives

Elena S. Mironciuc ’13, Russian and Studio Art
Advisor: Thomas Hodge, Russian

Soviet fiction writers had to submit to strict censure and propagate an image of the hard-working Soviet man. Right and wrong were clearly defined by the needs of the Communist Party. Once the censure was gone, however, the Russian fictional hero changed. I examine this phenomenon in the careers of the post-Soviet science-fiction authors Sergey Lukyanenko and Marina and Sergey Dyachenko. Their fictional writing is powerful because they can ask old questions in a context devoid of the reader’s stereotypes, prejudices, or past experiences. A recurring theme in Lukyanenko’s writing is the stark contrast between “us” and “others,” humans and aliens, or magicians living in present-day Moscow and “normal” people. An important theme in the Dyachenkos’ work is forgiveness, as exemplified in their novels The Scar and Skrut. In sum, the modern Russian science-fiction protagonist is three-dimensional and flawed. Unlike protagonists of the Soviet era, he is not a creature who dwells only within the confines of literature.

1:30–2:40pm

Notions of Inheritance in Joyce’s Ulysses and Faulkner’s Absalom Absalom!

Lucy V. Cleland ’13, English
Advisor: Margery Sabin, English

In the course of my 360/370, I am looking at the implications of failed rebellions in the places, generations and individuals presented in Faulkner and Joyce’s novels (specifically Ulysses, Absalom Absalom and The Sound and the Fury). Questions arise regarding what is inherited, how defining that inheritance becomes for individual (especially masculine) self-hood, where it comes from, and how individuals function under it and within it. I seek to explore notions about nations, place, atmosphere, blood lines, and fathers, and investigate what significance the similarities and differences between these two modernist authors may hold.

Nadine Gordimer, “The Conscience of South Africa”

Mariana Zepeda ’14, English and History
Advisor: Margaret Cezair-Thompson, English

In her work, South African writer Nadine Gordimer explores the fraught tensions of the human experience during apartheid and its aftermath, striving to represent the array of voices that compose South African society. Gordimer belonged to a minority of white South African activists sympathetic with anti-apartheid ideals and, consequently, has often been excluded from the canon of African postcolonial literature. This tension mirrors that which she explores in her work. At the core of Gordimer’s fiction lie characters striving to understand their relationships with one another and their roles within the South African nation. In her first novel, “The Lying Days,” and stories like “Which New Era Would That Be?” and “The Smell of Death and Flowers,” Gordimer explores the complex relationships that emerge in an era of dissidence, born of a shared impulse to challenge the color bar and reimagine South Africa.
Asian American Studies: Why it Matters to Everyone (panel discussion) Founders Hall 120
Bernice Y. Chan ’16, Undeclared, Karina S. Chan ’16, Undeclared, Julie Chen ’15, Undeclared, Christie H. Lee ’14, Political Science, Rebecca J. Leo ’13, Chinese Language & Literature and American Studies, Sukin Sim ’16, Undeclared, Kily A. Wong ’16, Undeclared, Ya Yun Zhang ’13, Sociology and Economics

The Wellesley Asian Alliance has been advocating for Asian American Studies and raising awareness of Asian American issues at Wellesley College since its founding in 1994. With the movement for Asian American Studies rising along East Coast colleges, and a rapidly increasing Asian American population, Asian American issues are becoming more salient to the general population. Furthermore, the histories of minorities are interconnected through countless commonalities from their experiences at Wellesley and in a larger American context. For instance, it has been reported that in Wellesley’s history, Asian students and students of African descent used to be forced to room with their respective ethnicities, or be in their own singles. This presentation covers that history of Asians in relation to other minorities at Wellesley and in America. WAA will also discuss what exactly Asian American Studies is and why it matters, especially to those not of Asian descent.

From the Sublime to the Ridiculous, And Back Again (long performance) Ruth Nagel Jones Theatre, Alumnae Hall
Jane E. Adkins ’13, Women’s & Gender Studies, Rachel E. Cherry ’13, History and Classical Civilization, Margaret E. Duan ’13, English and Theatre Studies, Vannesa K. Greenleaf ’14, Theatre Studies, Hilary J. Gross ’13, English, Elizabeth M. Jaye ’15, Classics, Alexa P. Keegan ’14, Psychology and French, Lindsay S. Rico ’13, Theatre Studies, Emily M. Shortt ’13, Biological Chemistry, Annie Wang ’14, Art History and Cinema and Media Studies

Each academic year, there are nearly a dozen theatrical productions put on by students across the campus. From the large-scale productions of the theatre department, the classical work of the Shakespeare society, and the independent projects of Upstage and theatre majors. This presentation shows off short scenes from each of the eclectic performances presented to the community throughout the year.

Exploring the Musical Vibrancy of the Baroque through Eighteenth Century Instruments (long performance) Pendleton Hall West 220
Elizabeth M. Bachelder ’13, Economics, Samantha M. Stephens ’14, Physics, Madeline M. Thayer ’15, Classics and German Studies

Playing on period instruments provides critical historical insight into the rich sound world of the eighteenth century. Since Baroque repertoire was conceived and composed with the sounds and technical capabilities of these instruments in mind, historical instruments are naturally able to express the character and phrasing of the repertoire. Further, the construction of these instruments creates built-in color variations between keys that likely would have been anticipated by composers. Although many modern instruments resemble their historical counterparts, their respective timbres and performance practices often differ greatly. This presentation will feature a concert of solo and trio sonatas for harpsichord, traverso, and viola da gamba, along with a discussion about the instruments and the benefits of performing on period instruments.

From Calves to Kindles: The History of the Book (on location presentation) Special Collections, Clapp Library
Cassandra L. Hoef ’15, Computer Science, Dominique R. Ledoux ’14, Art History, Morgan E. Moore ’15, Medieval/Renaissance Studies, Polina N. Soshnik ’14, Computer Science and Economics

Playing on period instruments provides critical historical insight into the rich sound world of the eighteenth century. Since Baroque repertoire was conceived and composed with the sounds and technical capabilities of these instruments in mind, historical instruments are naturally able to express the character and phrasing of the repertoire. Further, the construction of these instruments creates built-in color variations between keys that likely would have been anticipated by composers. Although many modern instruments resemble their historical counterparts, their respective timbres and performance practices often differ greatly. This presentation will feature a concert of solo and trio sonatas for harpsichord, traverso, and viola da gamba, along with a discussion about the instruments and the benefits of performing on period instruments.

Tactile History: The Story of Wellesley College’s Textile Collection (on location presentation) Print Room, Davis Museum
Sara M. Putterman ’13, Art History and Religion

Why does Wellesley College have a collection of European textiles that range from velvet dress borders and silk damasks to liturgical garments? Given to Wellesley College in 1875 as the centerpiece of a study collection for art history students, this collection has been in storage for years. What did nineteenth century trustees, professors, and students see in this group of fragmentary, poorly documented textiles that made them a valuable teaching tool? Analyzing examples of textiles dating from the fifteenth to the nineteenth century, I will examine Wellesley College’s pioneering efforts towards creating a collegiate museum that taught students with objects beyond traditional painting and sculpture.

Het Achterhuis: The Diary of Anne Frank Revisited (exhibition) Jewett Arts Center-Gallery
Danielle R. Ezor ’13, Art History and Studio Art

Anne Frank was immortalized through her diary, later published by her father as The Diary of a Young Girl, which detailed her experience as a Jew in hiding in Amsterdam. Het Achterhuis, as an altered version of Anne Frank’s diary, highlights Anne’s experience, in reaction to calls to ban the book because of its depressing content. This altered version of The Diary of a Young Girl includes digitally printed images and text, letterpress, sewing, guache paintings, cutouts, and linoleum prints all on a variety of different papers. The altered text block was bound in a new case with additional weight added in the covers in the form of copper plates. This exhibition will also include side projects associated with the altered book and the artist’s personal experience with the Holocaust and remembrance art.
Characterized by constant scheduling, studying, and social interactions, Wellesley’s unique environment fosters a culture of self-actualization in which discovering and achieving our perceptions of success stands at the cornerstone. This project attempts to visually portray the flux between hope and despair, satisfaction and shame in the lives of Wellesley students. Beginning with a scheme to deconstruct unfounded preconceptions of beauty within the ideological realm of Wellesley, the artist realizes that her project scope must widen to include a topic representing her own dreams: expelling human rights violations in North Korea. Paintings of Wellesley women, nude, vulnerable, and on the brink of initiation into an unforgiving world, are juxtaposed against portraits of North Koreans, depicting the clash between our quests to solidify our self-images at Wellesley and North Korean refugees’ struggle for survival and against injustice. Startling, bemusing, and unapologetically honest, this is an artist’s undertaking to envelop and evolve her personal battles and convictions in her studio. (Research supported by a Pamela Daniels Fellowship.)

Proceso para Progreso endeavors to expose the elements involved in the realization of visual expression and to force viewers to confront the reality that is endangered by deforestation.

No Place like Here: A Collection of Poems
(literary reading) Jewett Arts Center 454
Jay A. Steenquist ‘13, English and Creative Writing
ADVISOR: Daniel Chiaison, English

W. H. Auden wrote of Iceland, “this is an island and therefore Unreal.” The mountains, the tides, the rising shoulder of a glacier, all present a landscape of high drama, which, situated between two continents, sits on the verge of violent collapse. These poems, written both in Iceland and Wellesley College, investigate the relationship between the individual and an overwhelming landscape, the relationship between internal and external geography, and the imaginary and tangible boarders of the self. (Supported by a Wellesley Student Research Grant and NES Artist Residency)

Translation and Poetry: Defining Authorship through Practice
(literary reading) Jewett Arts Center 454
Arielle A. Concilio ‘13, English
ADVISOR: Lawrence Rosenwald, English

Translating poetry presents challenges distinct from other literary forms. Elements such as meter, rhyme, shape, or imagery combine to create meaning and sensations that the translator must communicate in the target language and reproduce in the reader. In this presentation, I will briefly discuss challenges in this process, the translator’s role as both collaborator and creative writer, and how one defines this role through practice. I will then read selections from my translations of Octavio Paz’s first edition of his first collection of poetry, Libertad bajo palabra.

Science and Technology

Cancer: Causes and Cures
(short talks) Pendleton Hall West 116
Targeted Delivery of Boron-10-Loaded Peptide Polymers to Pancreatic Adenocarcinoma Cells Via Biocjugated Gold Nanoparticles for Neutron Capture Therapy
Sara F. Althari ‘13, Biological Sciences
ADVISOR: Andrew Webb, Biological Sciences

Boron neutron capture therapy (BNCT) is a binary therapy based on the nuclear fission reaction that occurs when the nonradioactive boron-10 (10B) isotope is irradiated with thermal neutrons to produce alpha particles and lithium-7 nuclei. The cytotoxic products of this reaction have a characteristic path length of a single cell diameter, making it an ideal selective therapeutic strategy. The therapeutic value of BNCT relies on the directed delivery of a sufficient concentration of 10B to tumor cells, avoiding normal tissue. To this end, we are using multifunctional nanovehicles for antibody-targeted delivery of 10B-enriched molecules to pancreatic adenocarcinoma cells for BNCT.

Development of an In Vivo Assay for Antibody-Conjugated Gold Nanoparticles (AuNPs) Targeted to Human Pancreatic Tumor Xenografts Using an Ex Ovo Avian Embryo Culture System
Ilana R. Pollack ‘13, Biological Sciences
ADVISOR: Andrew Webb, Biological Sciences

Pancreatic ductal adenocarcinoma (PDAC) is an aggressive disease with a poor prognosis. In order to effectively improve pancreatic cancer outcomes, a highly targeted therapeutic is necessary. An antibody-conjugated gold nanoparticle (AuNP) would provide such a therapeutic platform. Effective targeting of the nanoparticle is possible through the linkage of monoclonal antibodies to target key antigens highly expressed in cancerous tissue. Previous work using RT-PCR and Western blotting has established the high level expression of the transmembrane glycoprotein A33 (gpA33) in the CAPAN-2 PDAC cells and the absence of gpA33 in the BxPC-3 PDAC cells. This differential protein expression allows for an experimental setup in which uptake of AuNPs conjugated with anti-gpA33 antibodies between CAPAN-2 and BxPC-3 tumors can be quantified and compared in vivo. Using an ex ovo avian embryo culture, specific targeting of our current antibody-conjugated AuNP construct to CAPAN-2 xenografts has been demonstrated.

Metabolomic Basis of Metastasis: Warburg Effect in Molecular Oncology
Ashley J. Porras ‘14, Neuroscience
ADVISOR: Martina Koniger, Biological Sciences

Cancer cells synthesize large amounts of fatty acids and cholesterol allowing them to avert apoptosis and increase drug resistance. One key lipogenic alteration that commonly occurs in prostate cancer cells, the focus of my research at Dana-Farber Cancer Institute,
includes over-expression of the enzyme fatty acid synthase (FASN). FASN is a key metabolic enzyme that ultimately aids in converting carbon intake into fatty acids for storage. We are testing multiple small molecule inhibitors of FASN to target this pathway and use Western Blots to assess if the concentration of FASN that occur during prostate tumorigenesis and progression decrease.

**Targeting Driving Mutations: Exploring Better Treatment Options for Childhood Acute Myeloid Leukemia**

Camille E. Hamilton ’13, Biological Sciences and French Cultural Studies

**Advisor:** Yuichiro Suzuki, Biological Sciences

My thesis explored the potential for finding better treatment options for childhood acute myeloid leukemia, or AML, by targeting the driver mutations that activate the cancer. Using an AML cell line known to contain two driver mutation, c-KIT and AML1-ETO, I used a group of drugs known to specifically impair the function of one or the other of the mutations. After confirming the efficacy of the drugs on their own, different combinations of drugs targeting each mutation were tested for any additive or synergistic effects. My findings indicate higher cell death rates of cancer cells with multiple drug combinations.

**Engineering for Humanity: Helping Elders Age in Place through Partnerships for Healthy Living**

(panel discussion) Science Center 104

Tamanna Ahmad ’13, Masters of Business Administration (Babson), Lauren Froshauer ’16, Mechanical Engineering (Olin), Hayley Hanson ’16, Mechanical Engineering (Olin), Sean Karagianes ’16, Mechanical Engineering (Olin), Kathryn Kenney ’13, Anthropology, Jeremy Liu ’13, Finance (Babson), Justin Poh ’16, Mechanical Engineering (Olin), Shubhangini Prakash ’13, Masters of Business Administration(Babson)

**Advisor:** Caitrin Lynch (Olin), Anthropology

Engineering for Humanity, an interdisciplinary engineering design and anthropology course, is a semester-long partnership between Three-College students and the Natick Council on Aging. Older community members were recruited to partner with students in a series of discovery, design, and community-building activities. Come hear Wellesley, Babson, and Olin students present results of the empathetic design process.

During the semester, students and their elder partners engaged in activities designed to create community and understanding. Next, students synthesized what they learned into project ideas, refining briefs into robust, targeted, and manageable projects through consultation with experts and co-design with elder partners. A series of standard design stages -- specification, prototyping, testing, refinement -- was accompanied by visits with partners for feedback and continued learning and community building. Shortly after the Ruhlman conference, partners will receive custom-designed artifacts intended to solve particular problems. (This Olin College class is supported by the Metrowest Health Foundation.)

**Light Waves, Matter Waves, and Brain Waves**

(short talks) Pendleton Hall West 117

**A Cool Way to Detect Gravity Waves**

Lamiya B. Mowla ’13, Astrophysics

**Advisor:** Robert Berg, Physics

Gravitational waves are distortions in the fabric of space-time caused by the acceleration of masses, such as rotating black hole binaries. Their existence was first predicted by Einstein in 1916, but they have yet to be detected because their predicted effects are extremely small. The Laser Interferometer Gravitational wave Observatory (LIGO) is attempting to detect cosmic gravitational waves. My experiment involves the design of the mirrors for the Third Generation LIGO. At the LIGO Lab at MIT, I am investigating the feasibility of using radiative cooling of silicon mirror substrates to 120 K to reduce thermal noise, which should greatly increase the sensitivity of the detector. I will also explore the effect of high emissivity coatings used in radiative cooling on the mechanical Q of the mirror, which is important because low mechanical damping is necessary for reducing fluctuations in the mirror positions.

**The Effect of Gas Pressure on Ultraviolet Absorption of Sulfur Dioxide**

Hannah E. Herde ’14, Physics and Classical Civilization

**Advisor:** Glenn Stark, Physics

Sulfur dioxide, SO2, is central to the study of early Earth’s atmosphere, particularly the rise of oxygen. The rise of oxygen in the Earth’s atmosphere is thought to be connected to sulfur isotopic signatures in the Earth’s rock record. As part of a long-term project conducted by Wellesley College’s Professor Stark and collaborators on isotopic SO2, we observed the effects of pressure on SO2 ultraviolet absorption - so called “pressure-broadening.” Using high resolution measurements from Synchrotron SOLEIL in St. Aubin, France, we quantified the pressure-broadening effect for atmospheric modeling purposes. The work was generously funded by NASA Planetary Atmospheres Program grant #NNX12AG61G.

**Analysis of Rat P3 in Frontal and Parietal Lobes as a Possible Neural Correlate of Attention in Active and Passive Oddball Paradigms**

Alicia O. Imada ’13, Neuroscience

**Advisor:** Michael Wiest, Neuroscience

The P3 is a component of the average EEG response to sensory stimuli that is believed to reflect attentional and memory processing. Because the P3 response in humans is altered in a number of neurological disorders, it is important to understand its generators. To determine whether the rat brain shows an analogous P3 response with functionally distinct early and late subcomponents, we are recording frontal and parietal local field potentials from chronically implanted multielectrode arrays, while rats are presented with tones in a passive condition or while they actively perform a simple auditory detection task. To the extent that rats and humans are similar in these processes, studies in the rat model could help us understand neural mechanisms of human attention.

**Spectral Analysis of Local Field Potentials in Frontal and Parietal Cortex of Rats Behaving During a Sustained Attention Task**

Caroline P. Dodge ’13, Biological Sciences

**Advisor:** Michael Wiest, Neuroscience

At any given waking minute, we experience an informational overload. One of the ways we cope with the sizable influx of information is the process of selective attention. To investigate the neural correlates of attention, I have focused primarily on two EEG-like measures of attention that derive from neural oscillations, gamma-range power and coherence. To determine whether the rat brain shows increased gamma coherence and power during states of high attention analogous to human EEG studies, we have recorded local field potentials (LFPs) in the rat frontal and...
In a recent study, researchers have discovered a close dynamic between our memory and our ability to imagine the future. People often draw materials from their personal past when they imagine a personal future event. Subsequently, these future events, encoded in their memory, may guide further guide their behaviors and moods. As research also found that people tend to remember positive future events better than negative ones, our study decides to investigate if participants with low vs. high anxiety-level differ in their ability to remember imagined future events. The implications of this study will provide insights into the interaction between episodic memory, future thinking ability, and anxiety.

Personality Stability in Late Life: Is Openness Plastic?  
Katherine A. Smiley '14, History and Psychology  
ADVISOR: Paul Wink, Psychology  
Openness to new experiences tends to decrease in late life. But is this a foregone conclusion, or can openness increase? In a recent study, researchers explored the effect of internal control (i.e., the perception that the outcome of an event depends on their behavior) on the trajectory of openness in late life. Participants in the study were enrolled in a volunteer training program or were simply part of a volunteer discussion group. After the training program had been concluded, researchers found that individuals who were trained and had high internal control actually increased in openness. Additionally, this trend of increasing openness was found to have not only continued, but also shown the most significant change one year after the study had been completed. Join us as we use a nationally representative sample to explore whether higher internal control really is the key to increasing openness in late life.

Using Imagined Interactions to Solve Social Dilemmas  
Katrina A. Tarnidi '13, Economics and Psychology  
ADVISOR: Tracy Gleason, Psychology  
While going to class, college students may recall conversations they had with friends while anticipating what they will say for future encounters. These daydreams are called imagined interactions (Ils), which serve as an important social cognition tool and have a variety of functions including enhancing relationships and managing conflict. My specific research question attempts to answer whether using Ils will help adults facing a social dilemma make more thoughtful decisions than those who don’t use Ils. The results of this study will provide interesting insights and build on a growing body of research on Ils.

Technology in Biology: Utilizing Innovative Interactions to Foster Collaborative Learning in Biology  
(on location presentation) Science Center 173  
Linda Ding '14, Computer Science, Taili Feng '13, Computer Science, Michelle N. Ferreira '13, Computer Science, Casey E. Grove '14, Computer Science, Veronica J. Lin '15, Economics and Computer Science, Sirui Liu '13, Biological Sciences, Kara Y. Lu '14, Biological Sciences, Kelsey L. Tempel '13, Computer Science, Wendy M. Xu '13, Media Arts and Sciences  
ADVISOR: Orit Shaer, Computer Science  
The Wellesley Human-Computer Interaction (HCI) Lab is dedicated to innovation and investigation of next generation technology. Throughout the summer and fall semester, student researchers in the lab have developed software suites to enhance collaborative, inquiry based learning in Biology. This presentation will focus on the design, implementation, and evaluation of four research projects: GreenTouch, a collaborative environment for engaging novices in scientific inquiry; MoClo, a multitouch interface for biological design; SynFlo, an interactive installation for exposing non-scientists to basic synthetic biology concepts; and lastly SynBio Search, a semantic search engine for synthetic biology research. (Research supported by National Science Foundation and HHMI).

POSTER SESSION  
Science Center Focus  
A Systematic Study of the Chemical Stress Response Induced by Bleach And Vinegar in E. Coli on Viability and Protein Expression Profiles Using Plating Assays And Matrix-Assisted Laser Desorption Ionization (MALDI) BiotyperTM System  
Serena Liu '13, Biological Chemistry  
ADVISOR: Didem Vardar-Ulu, Chemistry  
Bacterial water contamination is a serious global public health problem. While the contamination frequently originates at the water source, water storage conditions can heavily exacerbate the health risk. Here, we present our systematic study of the effects of two ordinary household chemicals, bleach and vinegar, on E.coli viability and protein expression profiles, as a function of chemical concentration, and incubation temperature. Matrix-assisted Laser Desorption Ionization (MALDI) Biotyper was used to compare the unique molecular fingerprint of E.coli subjected to multiple chemical stress conditions and harvested at different time points.

The Bronze Age Cemetery from Hapria, Romania  
Jenna M. Watson ’13, Anthropology  
ADVISOR: Adam Van Arsdale, Anthropology  
This poster examines 27 Bronze Age human skeletons of the cultural group Livezile from the site of Hapria, Romania dating between 2900-2400 BC. The Livezile were located in the western branch of the Carpathian Mountains (Apuseni Mountains) in Transylvania, Romania. My analysis of the remains aimed to determine age, sex, and identify pathology. Skeletal analysis indicates an age range from infants to adults in their 40’s. The most common disease present was Degenerative Joint Disease (DJD) with 10 of the 27 (37%) individuals affected. Of the 10 skeletons exhibiting DJD seven (70%) were at least 50, but no older than 50. One case of trauma was present. A male skeleton displayed a possibly fatal oblique cut mark on the left medial calcaneus. Skeletal analysis of disease and trauma can help us to better understand the cultural and physical changes communities from the Apuseni Mountains in Transylvania experienced over their existence.
Simple Structure, Entity Theory, and the Formation of Cognitive Barriers when Processing Mathematical Complexity
Sierra Sarntaro-Smart, Senior Davis Scholar, Psychology
ADVISOR: Beth Hennessey, Psychology

Previous research has focused on the indiscriminately broad categorical thinking that underpins social stereotyping and prejudice. This study extended the exploration of maladaptive modes of cognitive processing to non-social realms. It was hypothesized that for individuals with mathematics anxiety, inappropriately broad categorical thinking may serve as a barrier to processing complex mathematical concepts. In addition, this investigation measured the extent to which participants’ implicit assumptions about the origins of math intelligence covary with the tendency to employ simplified categorical thinking in mathematical realms. Study findings have the potential to inform our understanding of the specific cognitive responses to complexity that may underlie barriers to mathematical comprehension and fluency. (Research supported by the Office of the Provost and Dean of the College, as well as the Department of Psychology)

Modeling Stroke in Newborn Mice
Mehwish A. Mirza '15, Undeclared
ADVISOR: Adele Wolfson, Chemistry

Neonatal stroke is a major cause of infant death and permanent neuropsychological injury. Recently, the early response gene “verge” has been identified as highly active in the adult mouse brain post-stroke and during angiogenesis, the development of blood vessels. Verge mRNA expression increases threefold in the affected hemisphere of mice. In this study, 10-day-old mice with the verge gene (wild-type) and those without (knock-out) were used as a model of the human infant to test the hypothesis that verge improves stroke outcomes and angiogenesis in the ipsilateral hemisphere. Immunofluorescence studies were conducted to measure expression of CD105, an angiogenesis marker, and cresyl violet staining was performed to measure brain atrophy at different time points post-stroke. Verge knock-out brains retained a cyst while wild type brains experienced less damage, suggesting that verge serves as a neuroprotective agent in stroke. (Research supported by the University of Connecticut Health Center)

Signaling Mechanisms and Physical Structure of Biofilm Growth in Synechocystis sp. Strain PCC 6803
Jennifer E. Fishbein '13, Biological Chemistry
ADVISOR: Mary Allen, Faculty emerita

Many bacterial species, including the cyanobacterium Synechocystis sp. Strain PCC 6803, use the formation of biofilms as a survival mechanism. Biofilms are cell aggregates, which act as a protective barrier by providing nutrient access, increased drug tolerance and metabolic by-product sharing. Biofilms can form both in nature and in human infections, where they are very antibiotic resistant and thus particularly difficult to treat. To form biofilms, many bacterial species use a communication system involving chemical signals. In this study, we investigate the cell-cell communication of this cyanobacterium. The physical structure of the biofilms is also being analyzed. The wild type non-moteile cells form a uniform monolayer biofilm while the super-moteile mutant cells form pillar shaped biofilms that spread across the surface. Our goal is to gain a better understanding of this ubiquitous and diverse bacterial survival strategy. (Research supported by a Jerome A. Schiff Fellowship).

Biofilms and Light Signaling in Synechocystis sp. Strain PCC6803
Zihan Dong '13, Biological Chemistry and Psychology
ADVISOR: Mary Allen, Faculty emerita

Biofilms are how bacteria naturally exist in nature--enclosed in an extracellular matrix of protein and polysaccharides. The biofilm state protects bacteria against environmental stressors, such as antibiotics and biocides. Confocal microscopy was used to analyze the development of biofilms of two strains of Synechocystis sp. strain 6803, a wildtype and motile mutant, which were grown in flow cells. A significant difference was found in terms of their biofilm structures and growth, with wildtype biofilms being lower in height and not exhibiting dense clusters compared to the motile strain. The genomes of both strains were sequenced and then characterized for genetic differences. We also explored the ability of the motile mutant to move towards light, known as positive phototaxis. Our goal was to find the physical conditions required for maximal positive phototaxis in the motile strain.

Rejuvenation of a Cesium-Based Dispenser Photocathode in Response to Atmospheric Contamination
Alexandra L. Day '15, Physics
ADVISOR: Robert Berg, Physics

Photocathodes produce high-energy electron beams that are well suited for use in free electron lasers (FELs). This project describes work to study and improve the quantum efficiency of cesium-based photocathodes for use in ship-based missile defense FELs. Particular emphasis is placed on quantifying the ability of a hybrid dispenser photocathode to recover from intentional atmospheric contamination. External and internal cesium deposition methods were studied throughout the project, as were the effects of different temperatures and pressures. The results of this project clarify the tolerance of certain photocathodes to intentional contamination and describe the related effects on quantum efficiency. (This project was supported by the NSF, DOE, and ONR.)

Become Your Own Superhero: Effects of Self-Transformation on Executive Functioning
Karina K. Chung '13, Psychology, Aryanne D. de Silva '13, Psychology
ADVISOR: Tracey Gleason, Psychology

Our study examines whether self-transformation through pretend play can improve preschoolers’ performance on executive functioning tasks. Karniol et al. (2011) described the process of self-transformation as the mechanism through which children adopt the qualities of the character they are pretending to be. In our study, children were presented with a cape to wear. For some children, the cape was described as just part of the games, while for other children, the cape was described as having special powers that help children do well on the games being played. Children in the study then played three executive functioning games (e.g., Simon Says) that tested their impulse control and mental flexibility. We also investigated a number of additional factors including the influence of age, type of executive functioning task, and type of feedback (e.g., neutral or positive).
Effect of Saturation and Stereochemistry on the Biological Activity of a Novel Series of Coumarin Derivatives as Promising Pancreatic Cancer Therapeutics
Alyssa Bacay ’14, Biological Chemistry, Christine Chu ’15, Undeclared, Maria Jun ’14, Chemistry

ADVISOR: Dora Carriero-Moniz, Chemistry

Pancreatic cancer metastasizes early and is very difficult to diagnose in its early stages, making it one of the deadliest cancers. In 2006, a coumarin-based natural product, angelmarin, was isolated from the Japanese medicinal plant Angelica pubescens and was found to exhibit cytotoxicity against PANC-1 cells under nutrient-deprived conditions. Using the core structure of angelmarin as a scaffold, structure-activity relationship (SAR) studies were conducted and a novel geranylgeranylated coumarin-derivative was discovered as a promising new lead structure for the development of pancreatic anticancer agents. The effects of stereochemistry and saturation of the isoprenyl tail on cytotoxicity against PANC-1 cells will be presented.

Protease Sensitivity Map of the Highly Structured Heterodimerization Domain (HD) of the Human Notch 2 Receptor in the Presence and Absence of the Furin Cleavage Loop
Kimberly S. Cabral ’13 Spanish, Catherine Y. Cheng, Post-Baccalaureate Fellow, Biological Chemistry, Alysa R. Khan ’15, Undeclared

ADVISOR: Didem Vardar-Ulu

About 50% of human cases of T-cell Acute Lymphoblastic Leukemia show activating mutations that map to a specific address inside a single protein: the core of the Heterodimerization Domain (HD) of the Human Notch1 receptor protein. Notch receptors are an essential part of a highly conserved signaling pathway that regulates cell fate decisions. Ablerrant Notch signaling is associated with a multitude of diseases including many types of cancers. Normal activation of the receptor depends on a tightly regulated proteolytic cleavage within its HD. Through limited proteolysis with trypsin and chymotrypsin followed by Matrix-assisted Laser Desorption Ionization-Time of Flight peptide mass fingerprinting, and C18 reverse phase High Performance Liquid Chromatography, we mapped the protease accessibility of specific sites within the human Notch2 HD in the presence and absence of the unstructured loop and compared it to their predicted accessibilities based on current structural information. (Supported by the NIH and NCI)

Looking for Exoplanets
Kerrin M. Arnold ’13, Classical Civilization and Astronomy

ADVISOR: Kim McLeod, Astronomy

I contributed to the KELT-North project to help find exoplanets using the transit method. The KELT-North team has surveyed thousands of stars, analyzed their light curves, and picked out candidate stars most likely to have a transiting exoplanet. Here I describe why the KELT project needs data from telescopes like Wellesley’s 24” and how I conducted observations of several candidates, reduced the data using Python programs, and analyzed light curves. By the end of the semester we submitted observations of 7 stars observed over 12 nights to the KELT team.

Design and Synthesis of a Novel Series of Isoprenylated Coumarins as Potential Anti-Pancreatic Cancer Agents
Alyssa Bacay ’14, Biological Chemistry and Maria Jun ’14, Chemistry

ADVISOR: Dora Carriero-Moniz, Chemistry

The Japanese medicinal plant Angelica pubescens is a source of the natural product angelmarin, which was found to have promising activity against pancreatic adenocarcinoma cells under nutrient-deprived conditions. Based on the core coumarin structure of angelmarin, several series of novel isoprenylated coumarin compounds were designed and synthesized in order to study the effect of isoprenyl chain length and substitution position on the cytotoxic activity of the compound. The synthesis, purification methods, and characterization of the complete series of compounds will be presented.

Raging Hormones of the ‘Teenage’ Flour Beetle: Mechanisms of Metamorphosis Regulation in Tribolium castaneum
Leila Chaieb ’13, Biological Sciences and Middle Eastern Studies, Amy Ko ’14, Biological Sciences

ADVISOR: Yuichiro Suzuki, Biological Sciences

The regulation of the timing of developmental transitions, such as metamorphosis and puberty, is poorly understood. POU domain transcription factors have been associated with the regulation of endocrine changes associated with the onset of puberty. To see if the POU transcription factor Ventral vein lacking (Vvl) plays a role in insect metamorphosis, Vvl was silenced in the flour beetle Triboliumcastaneum. Silencing Vvl expression resulted in precocious metamorphosis and a reduction in kruppel homolog 1 (kr-h1), a target of the key insect metamorphosis regulator Juvenile hormone (JH). However, topical application of JH on Vvl knockdown larvae delayed the onset of metamorphosis and rescued the normal expression of kr-h1. Since the expression of JH acid methyltransferase, a JH biosynthesis enzyme, also decreased with vvl knockdown, Vvl likely regulates JH levels. Thus, POU factors may play a role in regulating the timing of developmental transitions in both vertebrates and insects.

Biological Evaluation of a Novel Series of Isoprenylated Coumarins as Promising Pancreatic Cancer Therapies
Alyssa Bacay ’14, Biological Chemistry and Maria Jun ’14, Chemistry

ADVISOR: Dora Carriero-Moniz, Chemistry

Angelmarin, a coumarin-based compound, is a natural product that was isolated from the root of the Japanese medicinal plant Angelica pubescens, and has been found to display promising activity against the pancreatic adenocarcinoma cell line PANC-1. Given this compound’s potential as a pancreatic anticancer agent, structure-activity relationship (SAR) studies have been initiated to discover more effective analogs and to identify the compound’s molecular target. These initial SAR studies led to the discovery of a novel geranylgeranylated ether coumarin derivative as a new lead structure. Cytotoxicity data for a novel lead series against PANC-1 cells under nutrient-rich and nutrient-deprived conditions will be presented. This project was done in collaboration with Professor Andrew Webb, Biology. (Research supported by the Roberta Day Staley and Karl A. Staley Funds for Cancer-Related Research and the Jean Dreyfus Boisevain Lectureship for Undergraduate Institutions.)

Task-related Activity of Neurons in Rat Cortex During Active Auditory Detection
Kaitlin S. Bohon ’14, Neuroscience

ADVISOR: Michael Wiest, Neuroscience

Despite the advances made in neuroscience within the past century, the neural mechanisms that underlie conscious perception are still unknown. In order to begin addressing this complex problem we recorded action potentials of single neurons in the auditory cortex during active auditory detection.
potentials from multiple sites in the medio-dorsal frontal cortex and posterior parietal cortex of rats while they performed an auditory detection task. We then analyzed the multi-unit spiking data in order to parse out neural correlates of task performance, including detection of the target stimulus. Our preliminary results suggest that the activity of a minority of neurons in both areas signal the presence of the auditory target stimulus.

Extracellular Thimet Oligopeptidase is Carried by Cell Membrane Microvesicles of Prostate Cancer Cells
Yu Liu ‘13, Biological Chemistry
Advisor: Adele Wolfson, Chemistry
Peptidases are enzymes essential to the physiological generation and regulation of bioactive peptide signals, which mediate intercellular communication in multicellular organisms. Because the processing of peptide precursors occurs both inside and outside the cell, many peptidases must exist intracellularly and extracellularly to fully modulate their peptide substrates. The peptidase enzyme thimet oligopeptidase (TOP) has been localized on the plasma membrane outer surface and in the supernatant of cell cultures. Recent studies highlight the significance of microvesicles (MVs), plasma membrane bleb formations, as extracellular carriers of membrane-associated molecules (i.e. proteins) upon dissociation from the parental cell. We asked whether extracellular TOP is carried by cellular MVs. Western blot analysis revealed that TOP protein is indeed carried by the cellular MVs of androgen sensitive prostate cancer cells. Additionally, treating these cells with a calcium-ionophore (a compound that allows Ca2+ to enter cells) induced dose-dependent increase in MV release and extracellular MV-associated TOP expression.

Moving out into the World: Community Writing and Impact
Mona I. Elminyawi ’14, English
Advisor: James Wallenstein, English
Barack Obama said that when he went into community organizing in Chicago’s South Side, he “didn’t know what he was doing.” He said that the work that he did in those communities changed him more than the communities changed him. Last semester I took on a volunteer position that allowed me to write about and study community based activism, both its implications and impact. I volunteered at 826 Boston in Roxbury in conjunction with my writing class at Wellesley, “Writing and Action.” 826 Boston is a non-profit organization in Roxbury that aims to empower youth by providing them with mentorship and the tools of writing. As an after school tutor I worked with students on homework and creative writing assignments. Back at Wellesley I was forced to consider the intersections of my position as a student, writer, tutor, and member of multiple diverse communities. Other questions that came up: how can creative writing be a mirror or disoriter of communities and its individuals? How does writing about communities manage to transcend and blur distinctions between genres? What does it mean to be engaged? What is my impact as an individual going into this community? What were my actual contributions?

Letting The Elderly Speak: Stories of Physical and Mental Well-being in the Aging Population
Jane Qu ‘13, Neuroscience
Advisor: Michele Respaut, Faculty emerita
“Literature and Medicine” CPLT 334–is a course that intersects the power of medicine with the power of words. Inspired from my experiences volunteering on the Biography Project at a nursing home, my final project focused on the elderly population and combined creative writing and research. Greater involvement in elderly well-being has become crucial given the projected increase of this age group in our population. My talk highlights the stories and thoughts of nursing home residents across different countries, delving not only into their past experiences and memories, but also into the physical and emotional concerns that come with aging.

Boston Cafés: A Connection to City Life
Megan N. Turechi ’13, American Studies
Advisor: Kathleen Brogan, English
Cafés in Boston represent more than just places where one quickly stops to get his or her morning coffee. The diversity seen through Boston’s many distinct neighborhoods is portrayed through the atmosphere and ambiance witnessed in cafés. Through the observation of the type of coffee and food sold, customers, physical layout, employees, and ambiance, cafés seem to create an atmosphere of familiarity and comfort for their customers. After observing Crema Café in Harvard Square, Trident Books in Back Bay, and Caffe dello Sport in the North End, it appears that these cafés establish neighborhood specific cultural codes, in order to turn an otherwise public space into a more private setting pertaining to the customers’ needs. City dwellers use these cultural codes to feel a sense of belonging in their own neighborhood, so they can better relate to Boston as a whole.

Daniels Fellows
(Short Talks) Jewett Arts Center 450
An Investigation of the Feasibility and Progress of the Millennium Development Goals in the Kingdom of Swaziland: A Case Study.
Andrea D. Kine ’13, Africana Studies
Advisor: Filomina Steady, Africana Studies
The United Nations has established Millennium Development Goals (MDGs) in 2000, as a benchmark for developing nations, with targeted achievement of these goals by 2015 for participating governments. This
research aims to understand the position of Swaziland in achieving the eight MDGs, with a special emphasis placed on women. National and UN Development Reports will be analyzed to assess Swaziland’s development progress through the lenses of the reporting agencies. Interviews will be conducted with top government officials representing ministries of relevance, and also with local leaders and NGOs who will share perspectives on local progress. Interviews with Swazi women will enable a closer look beyond the statistics presented by government data, through stories that figures and graphs fail to represent.

(Outside supported by a Daniels Fellowship)

**Outside the Literal House: Staging Euripides’ Orestes**

*Megan S. Wilson ’13, Classics and Comparative Literature*

advisor: Carol Dougherty, Classical Studies

My senior thesis grapples with the issues raised in Euripides’ Orestes by staging it for a modern audience. The play engages with Aeschylus’ Agamemnon; it is concerned with the same themes but gives them a radically different treatment. Euripides empytes the Aeschylean “house” of its symbolic content, traditionally the aristocratic family. Accordingly, Euripides’ language is more concrete than Aeschylus’, and his plot is driven by exterior rather than interior events. I bring out both qualities in my production of Orestes, which I staged in an original translation in April. The performance manifests on stage the most challenging aspects of Euripides’ text and argues for the play’s departure from tragic convention by staging the absence of an interior and employing the “unreliable narrator” technique as a proxy for Euripides’ play with genre. It also includes musical and scenic effects designed to bring the Greek tragic stage to a modern audience.

(Outside supported by a Daniels Fellowship)

**Creating a Passive Refrigerator:**

*Reducing Energy, Reusing Waste, Recycling the Ice House Concept*

*Carly L. Gayle ’13, Environmental Studies, Benjamin Chapman ’14, Mechanical Engineering (Olin)*

advisor: Monica Higgins, Environmental Studies and Jessica Townsend, Mechanical Engineering (Olin)

This project involved the design, modeling, and construction of a walk-in refrigerator that uses less electricity than a light bulb and costs less than $1000 in materials. The refrigerator occupies a 12 by 8 foot room in the basement of the farmhouse at Medway Community Farm. The system freezes 3000 kg of water, held in 2-liter soda bottles, during the winter. That ice, along with thick insulation made of shredded Styrofoam, keeps the refrigerator cool for the rest of the year. A lifecycle assessment shows that this passive refrigerator consumes less than one percent of the energy of a comparable commercial model. This method shows great promise for adaptation into a wide variety of refrigeration and air conditioning systems, which currently consume 12% of the electricity used in the U.S.A.

(Outside supported by a Daniels Fellowship)

**Know Nothing of Other Languages, Know Nothing of One’s Own**

*(short talks)* Science Center 396

**Language and Secession: The Relationship Between Language Attitudes and Nationalist Ideology in Quebec**

*Laura M. Dulude ’13, Cognitive & Linguistic Sciences*

advisor: Andrea Levitt, French

Nationalism has been brewing in Quebec since the birth of Canada, and separatism has been a popular ideology in the province since the 1960s. Quebec is the only monolingual French-speaking province in a largely English-speaking Canada. As such, the issues of language identity and attitudes play an important role in Quebec’s relationship with the rest of Canada, whether that relationship be harmonious or discordant. Using a survey of young and older inhabitants of Quebec, I explore issues of separatism and nationalism in the Belle Province as they relate to demographic factors and language attitudes.

**The Choice of Language Class and One’s Personality**

*Eriko Houdette, Senior Davis Scholar, Psychology*

advisor: Julie Norem, Psychology

A famous Czechoslovakia proverb from says, “Learn a new language and get a new soul.” Such proverb seems to suggest that there is a strong relation between languages and one’s personhood. The relation of college students’ personality and their choice of language class were investigated in this study. The data was collected from among the students in Japanese, Spanish and German classes using questionnaires which measured student’s extraversion, shyness, sensory-processing sensitivity, rich in inner life, concern for appropriateness, reasons for choosing the particular language, likes and dislikes of the language and choosing adjectives which reflect the relation between personality and the language. The result showed statistically significant difference in the mean score for the extraversion among the language classes. Overall, the students indicated that they are comfortable in their choice of language, implying that they chose the language that matched their personality.

**Investigating the Relationship between Age of Acquisition of a Second Language and Lexical Retrieval Ability in Bilinguals**

*Andrea A. Takahesu Tabori ’13, Psychology and Religion*

advisor: Jennie Pyers, Psychology

Research suggests that bilinguals who acquired their second language early in childhood have an enhanced cognitive ability to inhibit, which may give them an advantage in lexical retrieval relative to later bilinguals. The current study investigates the relationship between age of acquisition of a second language and the lexical retrieval ability in bilinguals by comparing the lexical retrieval ability of 30 English monolinguals, 30 early Spanish-English bilinguals who acquired English by age three, and 30 late Spanish-English bilinguals who acquired English between ages four and six. The three groups were matched on non-verbal intelligence and vocabulary size was statistically controlled. (Research supported by Psychology Department and Office of the Provost and Dean of the College Research Grant)
Breast cancer is the leading cause of cancer mortality among women. As life expectancy in low-income countries increases, the global cancer burden is shifting to populations in the Global South, which experience disproportionate rates of mortality. However, only a small fraction of global cancer spending is allocated towards these most vulnerable populations. Paying special attention to breast cancer, I am compiling the current literature on cancer in low-income countries, drawing from the fields of global public health, international political economy, and medical anthropology and sociology. It is my hope that this work will help facilitate an understanding of how the factors contributing to cancer's increasing global burden relate to transnational processes including resource allocation, environmental regulations, and hazardous waste disposal. (Research supported by the Sophomore Early Research Program)
or criminal, convey hopes for social change and community justice. Narco-corridos, a musical style popular throughout Northern Mexico, are ballads that describe people’s involvement in drug trafficking activities. The majority of the scholarly work on narco-corridos has focused on the study of male characters, ignoring or mentioning women only in passing. This presentation will discuss the roles women play in drug trafficking and the roles that have been constructed for them in narco-corridos over time.

The Sum of My Parts (and Some of My Parts): Exploration of Memory, Gender and Self-Narratives in a Zine
Emily F. Gamber ’14, Women’s and Gender Studies and American Studies
ADVISORS: Irene Mata and Roanna Hertz, Women’s & Gender Studies

Zines can be powerful medium for self-narratives. Self-published and creator-distributed, they can break the molds of traditional publishing and make room for creative tellings of marginalized stories. In a final project for Crossing the Border(s), a Chicana/Latina theory and literature class, students were challenged to create their own self-narratives. Starting by positioning myself within the discourse of feminist and queer scholarship, I specifically consider the work of Chicana feminist poet, writer, and cultural theorist, Gloria Anzaldúa. This zine explores the construction of memory through complex family history and memory’s function in the creation of self. It focuses on the creation of solidarity ideologies through experience and identity, and its material manifestations. Finally, it considers the act of writing as the theorizing work necessary for survival in the margins.

Why Hip-Hop is Queer: Using Queer Theory to Examine Identity Formation in Rap Music
Silvia Gallo-Mendez ’13, Women’s & Gender Studies
ADVISORS: Irene Mata and Roanna Hertz, Women’s & Gender Studies

Although many believe hip-hop is irredeemably misogynistic and homophobic, hip-hop actually provides a unique space for queer interpretations of identity. Rap music is a poetics and a politics which construction of oppositional narratives and presentation and performances of race, gender, and sexuality is possible. The works of hip hop artists Azealia Banks, Frank Ocean, Las Krudas, and Big Freedia particularly illuminate the processes of identity formation and presentation. Using queerness to examine hip-hop, and using hip-hop to examine queerness demonstrates the significance of hip-hop as a cultural production and social movement.

POSTER SESSION
Science Center Focus

Consumer Society
Clara M. Kahng ’13, Economics, Jean H. Lee ’13, Sociology, Sia Smith-Miyazaki ’13, Sociology
ADVISOR: Markella Rutherford, Sociology

Fall semester we were challenged to rethink the things that we consume. We each chose a particular commodity, a category of consumer goods, or a particular consumer practice and conducted a sociological analysis of it. Our posters are of the commodification of vacations, the Super Bowl, and poverty. When pursuing our analysis we considered a variety of questions including: How is this commodity consumed? What are the messages tied to this commodity? What roles does this commodity play in the construction and display of individual identity? What role does the commodity play in marking socioeconomic class boundaries?

A Veiled Threat? Scarves and Securality in the Turkish Republic
Rebecca P. Lucas ’14, Political Science and Religion
ADVISOR: Edward Silver, Religion

Turkey has been lauded in the West as an exemplary country where Islam and democracy coexist within the framework of a secular government. Recently, however, citizens and politicians alike have challenged the restrictions placed on religious practice, most visibly in the ongoing “headscarf debate”. The debate concerns laws banning religious symbols from government space, including the headscarves common in traditional Turkish culture and among observant Muslim women. Because the ban encompasses the legislature and public universities, it forces women to choose between their religious beliefs and their education or political involvement. Many argue this violates their freedom of religion, and is detrimental to democracy; others argue that the ban and similar restrictions are the only way to preserve the secular Republic. The headscarf debate is part of a dialogue that may determine the future of secularism in Turkey.

Literary Expressions from Wood to Clay
Hemingway and the Accidental Art of Journalism
Sara M. Simon ’13 English
ADVISOR: William Cain, English

In his late teens and early twenties, Ernest Hemingway began his professional writing career with newspaper articles for the Kansas City Star and the Toronto Star. These were no minor jobs; for the Toronto Star alone, Hemingway wrote 172 pieces. For decades, scholars have identified this early work in journalism as a significant training experience that influenced Hemingway’s creative writing. My thesis project takes this point as an important step further. Through a collection of close readings, I argue that Hemingway’s early short stories and novels can only be fully appreciated and understood through a detailed examination of his journalism.

Revelatory Words and Images:
William Blake and the Artist’s Book
Rusi Li ’13, English
ADVISOR: Alison Hickey, English

Merging literature and visual art, artist’s books reveal the fascinating experiment between word and image. The works of the Romantic poet, printer, and visionary William Blake invite exploration of this relationship. Blake’s illustrations in Songs of Innocence and Experience, revelatory in themselves, often subtly undercut or complicate the meanings of his writings, offering a complex view of the songs as both literary creations and material objects. Blake conceived the medium of the book as an ideal vehicle that, marrying text and image, had the power to join the author and the reading public. In addition to interpreting Blake’s poems, I examine his books as material objects, paying special attention to the relation of text and image. With Blake’s powerful example in mind, I proceed to examine contemporary “artist’s books” in order to gain insights into the continuing evolution of the book form.
Reflections on the Afterlife: Fra Girolamo Savonarola’s Perspective on the Eventuality of Death through Woodcut Illustrations
Isabelle R. Erb ‘13, Art History and Italian Studies
advisor: Jacqueline Musacchio, Art
My Art History thesis focuses on Dominican friar Fra Girolamo Savonarola (1452-1498) and his role in popular religion in Renaissance Florence. He delivered sermons at San Marco, San Lorenzo, and the cathedral of Santa Maria del Fiore, to audiences of as many as 20,000. His preaching took advantage of contemporary crises, such as plague and famine, and achieved notoriety through his prophesies of spiritual renewal for the entire church. Savonarola’s sermons were circulated in the form of early printed books with woodcut illustrations. The woodcuts expressed his awareness of death as a lurking evil, ready to attack at the first sign of weakness; Savonarola told his followers to keep these woodcuts in their homes as a reminder of the inevitability of one’s passing. Ultimately, they proved to be a crucial aspect of Savonarola’s control over Florence.

The Fiction of the Fabricated Ruin: Exploring Memory in the work of Adrián Villar Rojas
Mina Jahn ‘13, Art History
advisor: Patricia Berman, Art
The sculptural practice of Adrián Villar Rojas (b. Argentina, 1980) threatens to fissure the continuous façade of our reality through its uncanny insinuation of parallel temporalities. His construction of monumental ruins amalgamates disparate forms ranging from the organic to the aggressively industrial, and his large-scale works are rendered more enigmatic due to their eventual destruction. His use of unfired clay produces a decaying aesthetic that alludes to the fragility of narratives traditionally imbued within monumental forms, thereby calling attention to the tenuous existence of individual and collective memory. Through an analysis of the artist’s monumental clay works, this thesis will examine how Villar Rojas’ ruinous aesthetic elucidates the calculated process of construing memory and history.

The Search for Liberty in Captivity: Cervantes in Africa (panel discussion) Science Center 104
Cara M. Borelli ’15, English, Melissa M. D’Andrea ’14, Biological Chemistry, Molly E. McNamara ’15, Spanish and Neuroscience, Rebecca J. Rubinstein ’15, Spanish, Gabriela M. Salcedo ’15, Undeclared, Anne V. West ’15, Undeclared, Anne M. Williams ’13, Mathematics and Spanish
advisor: Jill Spverson-Stork, Spanish
After fighting against the Ottoman Turks in the Battle of Lepanto in 1571, Miguel de Cervantes Saavedra was enslaved by his foes in Algiers (1575-1580). While held for ransom in this North African city, Cervantes witnessed a world diametrically opposed to his native Spain. Here, in Algiers’ multicultural, multilingual, and multi-faith society, Cervantes experienced captivity, yet also an ironic reprieve from the Spanish atmosphere of Inquisitorial suspicion. As goods, persons, and ideas were traded furiously around him, Cervantes calibrated and considered the values of empire. From salvation by faith, to gender roles, to the notion of free will, Cervantes left no absolute unscrutinized in his works. Over four hundred years later, the author’s illusive, engaging voice continues to challenge readers. After a semester of studying Cervantes, we hope to present a richer portrait of this former captive, beyond his well-known role as author of Don Quixote.

The Unending Beauty of Schubert’s Lieder: A Lecture Recital on Word Painting (short performance) Jewett Arts Center-Auditorium
Katherine A. Siegel ’14, Music
advisor: Jenny Tang, Music
Whither, whither should you come to immure yourself in the unending beauty of Schubert’s lieder? Schubert’s exquisite mastery of the lied (or German art song) will be our topic as you enjoy 3 of his over 600 lieder. Ganzved (Goethe, 1817), An die Leiter (Bruchmann, 1822) and Die Liebe hat Gelogen (Platen-Hallermünde, 1822) are just the poetic masterpieces that will be performed and discussed to demonstrate Schubert’s unparalleled ability to set the visions of poets to music. Schubert revolutionized the composition of song through his use of the piano and voice as equals in expressing the text. With the expressive power of the voice’s melody line and the piano’s harmony combined, Schubert achieved a level of “word painting” that will lead us on a journey through these poems about love, war and Greek Mythology.

Mozart Sonata for Two Pianos in D major (K. 448) (short performance) Jewett Arts Center-Auditorium
Chuyan Huang ’15, Undeclared, Anita Z. Li ’15, Undeclared
advisor: Lois Shapiro, Music
Wolfgang Amadeus Mozart has been celebrated as one of the most brilliant and prolific classical period composers. The D major sonata was composed in 1781 when Mozart was 25. It is among the few of his two piano pieces, but is very well-known for its “Mozart effect”, suggesting that classical music has a bigger chance of increasing reasoning skills and human brain activities than other types of music. The first movement Allegro con spirito starts off the sonata in D major, setting the central theme with a strong introduction. The second movement Andante allegro is written strictly in an ABA structure at an appealing tempo. The last movement Molto alLEGRO has a reoccurring theme with highly-contrasting melodies. Through a semester of work under the guidance of instructors Randall Hodgkinson and Lois Shapiro, the presenters will perform the first two movements of the sonata.

Science and Technology
Garbage In, Garbage Out: Wall Street, Main Street, and i-Street (short talks) Science Center 278

Technology and Wall Street
Akolof A. Ahiable ’13, Computer Science
advisor: Brian Tjaden, Computer Science
When Wall Street started, every transaction, every computation was done by hand. Exchange floors were constantly buzzing with human activity and interaction. However, with the advent of new technology, there was a massive change on the Street; floors were closed down and replaced with screen trading systems. David Leinweber in his book, Nerds on Wall Street said, “there’s so much technology in modern markets that it’s easy to forget that some of our favorite markets, like the New York Stock Exchange, started out as very low-tech places.” We’re going to take a journey through time to see how technology
transformed Wall Street and I will describe a compute program I designed that simulates a little bit of what is done in big ratings companies on Wall Street like Standard and Poor’s, where I interned this past summer.

Incorporating Public Outreach into Existing Curriculum as a Solution to Bridge the Perceived Gap between Classroom and Real World Biochemistry
Catherine Y. Cheng, Post-Baccalaureate Fellow, Biological Chemistry
ADVISOR: Didem Vardar-Ulu, Chemistry

There is a perceived gap in society between biochemistry in the classroom and that pertinent to real societal concerns. I will present a case study on how an explicit outreach component can be effectively incorporated into an existing upper-level undergraduate biochemistry course to help bridge the gap between “scientists” and the “public.” In 2012, CHEM328 students were given three options for disseminating their understanding of a health-related biochemical problem to a general audience. The outcome was positive on both ends, highlighting the promise and value of outreach work in developing skills in independent content learning and communication.

User-customizable Game Environment in iPhone
Hye Soo Yang ’13, Media Arts and Sciences
ADVISOR: Scott Anderson, Computer Science

While today’s game engines provide realistic 3D gaming environments, they are predefined by the game designers and do not give much customizable flexibility to the users. The goal of the project is to create an iPhone application that allows a new gaming experience in which the users are able to recreate their physical space into a gaming environment. That is, they are able to play in a more personal and familiar setting. As an exploration game with a number of user-customizable maps, the application is designed to allow sharing visual experiences of being at a place in a more natural manner through entertaining environment.

Arsenic in Asia: Genesis, Chemistry, and Environmental Implications
Siyi Zhang ’15, Undeclared
ADVISOR: Daniel Brabander, Geosciences

Over 100 million people worldwide are exposed to excessive amounts of arsenic through drinking arsenic-contaminated groundwater. Many Asian countries, in particular, are known for elevated arsenic level in their estuarine system. Previous studies have been focused on the transport mechanisms and public health effects in the sediment environment. Identifying the sources of arsenic and the initial process that removes arsenic from its origin is equally crucial for us to estimate arsenic distribution and to design prevention schemes. This study focuses on the a wide range of existing literature on Southeast Asia and East Asian countries with historically reported high arsenic in groundwater. Aside from the anthropogenic factors, it is hypothesized that the weathering of arsenic-bearing mineral phases in the Himalayas serves as the primary Arsenic reservoir for Ganges—Brahmaputra and the Mekong deltas in Southeast Asia. High-As Regions in East Asia are also included for provenance comparisons.

Project Runway: Model Organisms (short talks) Pendleton Hall West 116

Latency in V4/PIT Vision Cells
Monica A. Gates ’15, Neuroscience, Jian-Ying Hu ’14, Neuroscience
ADVISOR: Bevil Conway, Neuroscience

Little is known about how color is encoded in the brain. One possible encoding mechanism uses the timing of a neural response to a stimulus to convey information about hue, saturation, or luminance. Latency is one metric of the temporal dynamics of neurons, and is also used to assess the stage of a given neuron within the visual-processing hierarchy. We examined response latencies of visually responsive cells in macaque V4/PIT following presentation of visual stimuli varying in hue, saturation and luminance. We test the hypothesis that stimuli of high luminance contrast produce shorter latencies, as has been found for neurons in other visual areas. We also assess the differences in response latency to stimuli of identical luminance but different saturation and hue, to test the possibility that these dimensions are encoded by temporal dynamics. Preliminary results show latency to be inversely related to saturation.

Neuroprotective Agents: Understanding Female Sex Hormone Action in Diabetic Neuropathy
Sarah D. Finkelstein ’14, Neuroscience
ADVISOR: Marc Tetel, Neuroscience

Sixty percent of diabetics develop some form of diabetic-neuropathy. Diabetic-neuropathy is the neuronal death of peripheral nerves, such as the sciatic nerve, due to the degradation of myelin, the protective protein surrounding the nerves. Schwann cells produce myelin in the peripheral nervous system. Interestingly, progesterone, an ovarian steroid hormone, causes an increased production of an important protein in myelin by binding to progesterin receptors (PR) and recruiting steroid receptor coactivators, such as SRC-2. Estradiol, another steroid hormone, mediates the expression of PR in steroid-sensitive tissues. My study investigates whether PR are estradiol-induced in the female rat sciatic nerve using antibodies that tag PR and SRC-2 in the sciatic nerve of rats treated with estradiol. Co-localization of PR and SRC-2 in the same cell provides neuroanatomical evidence for their interaction and will enhance our understanding of the protective role of progesterin in diabetic-neuropathy in females.

The Genetic and Hormonal Mechanisms of Oncopeltus fasciatus Abdominal Patterning Regulation
Tiffany Chen ’13, Biological Sciences
ADVISOR: Yuichiro Suzuki, Biological Sciences

Phenotypic plasticity describes the ability of a genotype to produce different phenotypes in response to the environment. When a discrete switch exists in the phenotypes produced in response to a continuously varying environmental input, the plastic trait is known as a polyphenism. Developmental hormones, such as ecdysone and juvenile hormone (JH), are known to control polyphenisms, but the origins of polyphenisms remain poorly understood. Ventral abdominal spot patterning of Oncopeltus fasciatus, the milkweed bug, is an example of a temperature-dependent phenotypically plastic trait. Using double-stranded RNA injections, we knocked down the expression of the Hox genes abdominal-A (abd-A) and Abdominal-B (Abd-B), JH receptor Methoprene-tolerant (Met), and nuclear hormone receptors Ecdysone receptor (EcR) and Fushi tarazu factor-1 (FTZ-F1) to explore the genetic and hormonal mechanisms of abdominal pigmentation. Studying how the melanization of the abdominal spots are regulated has implications for our understanding of the origins of polyphenisms.
Choosing a Laboratory Animal:
Understanding the Function of the Human Brain and Its Diseases through Various Animal Models
Michiko O. Inouye ’14, Music
advisor: Simone Hellay, Biological Sciences
At first glance, the study questions being explored at the Okano Lab at Keio University seem disparate, not to mention that nearly every project uses a different laboratory animal. How are the wrinkles of the brain formed, and why do they expand to different thicknesses? What is the function of the blood-brain-barrier and what molecules are responsible for its maintenance? Do social interactions reduce the risk of developing neurological disorders? Could RNA modification explain brain diversity among different species? How does a nervous system disease affect nerve cell appearance? Through a wide range of topics these studies converge to deepen our understanding of the human brain and its pathologies. The use of various laboratory animals allows us to look at neuroscience from both a biological and a psychological standpoint. In this presentation I will discuss experiments that involve animals such as mice, fruit flies, and marmosets, as well as the benefits of using these species.

You Are What You Eat
(short talks) Pendleton Hall West 117
Modeling Obesity in C. elegans
Shaheen I. Rangwalla ’13, Anthropology and Chemistry
advisor: Didem Vardar-Ulu, Chemistry
One of the world’s leading chronic diseases, diabetes, is on the rise in every country around the world. At Joslin Diabetes Center I worked with C. elegans to model obesity, the leading cause of diabetes in type II patients. Pathways that regulate metabolism are conserved from the worm to the mammalian level, allowing us use them as models. The worms were put on different diets and were specifically mutated to monitor fat content, health-span, and lifespan, as affected by the insulin pathway.

Malnutrition and Behavior: Do Hungry Honey Bees Dance?
Hailey N. Scofield ’13, Biological Sciences
advisor: Heather Mattila, Biological Sciences
Juvenile malnourishment affects learning and task performance in many species but is poorly studied in invertebrates. We examined the effect of such stress on the foraging performance of an economically important model invertebrate, the honey bee (Apis mellifera). Pollen, which supplies essential nutrients to developing honey bee larvae, is often in short supply in colonies because of seasonal dearths or intensive management practices. However, it is not known how pollen deprivation during larval development affects the performance of honey bee workers as adults. We compared foraging behavior between groups of workers that were reared under conditions of either pollen abundance or deprivation. Longevity, onset of foraging, and time spent waggle dancing by workers were compared between treatment groups. Our study provides insight into the role that nutritional state during larval development plays in the health and function of honey bees and their colonies.

The Secret Lives of Bluestreak Cleaner Wrasses in Hoga Island, Indonesia
Alysa G. Wihtlison ’13, Biological Sciences
advisor: Jeffrey Hughes, Biological Sciences
The bluestreak cleaner wrasse (Labroides dimidiatus) is an integral part of the tropical coral reef ecosystems as a cleaning organism that rids other fishes of ectoparasites. This seemingly mutualistic interaction between host and cleaner fish is not as straightforward as it seems due to the cheating behavior of the cleaners. With a strong preference towards host mucus and scales, cleaners sometimes cheat and take a bite out of the host. In summer 2012, I studied the behavioral choices of blue streak cleaner wrasse in Hoga Island, Indonesia by documenting cleaner wrasse activities through underwater videos and utilizing benthic survey data. I used market theory to explain the actions and choices made by the cleaners, and to elaborate on how the cleaner-host interaction may have been maintained over time.

An Unlikely Relationship: Predator-prey Interactions between Flatworms and Tube-building Amphipods in the Chesapeake Bay
Julia N. Adams ’14, Biological Sciences
advisor: Jeffrey Hughes, Biological Sciences
Within the Chesapeake Bay, flatworms are recognized as common predators of barnacles and oysters. Historically, the two main flatworm species, Euplana gracilis and Stylochus ellipticus, have been grouped together due to a difficulty to distinguish one from another. Although S. ellipticus has been extensively studied because of its impacts on commercially valuable oysters, little is known about E. gracilis. We elucidated the differences between these two flatworms. We focused primarily on the predator-prey interactions of E. gracilis and its commonly encountered benthic prey species in Chesapeake Bay. Our results indicate voracious predation on Apocorophium lacustre, a common tube-building amphipod found along the Atlantic coast. We found a positive relationship between flatworm size and consumption rates. Tubes constructed by amphipods provided no refuge from predation. This is the first reported occurrence of estuarine/marine flatworm predation on amphipods, and makes clear the trophic importance of this abundant, although overlooked, predator.

The Role of Steroid Receptor Coactivators in Hormone Action in Brain
Young C. Hsu ’13, Neuroscience
advisor: Marc Tetel, Neuroscience
The ovarian steroid hormones estradiol (E) and progesterone (P) play important roles in reproductive physiology and behavior. The effects of E and P are mediated by their respective receptors, estrogen receptor (ER) and progestin receptors (PR) which are transcription factors. E induces the expression of
PR, which are expressed as two isoforms: full length PR-B and the shorter PR-A. These two PR isoforms, PR-A and PR-B, have profound functional differences in physiology and behavior. Members of a family of steroid receptor coactivators (SRCs), SRC-1 and SRC-2, facilitate the transcriptional activity of PR. In the present study, we investigate whether SRC-1 or SRC-2 are differentially expressed with the PR isoforms in mouse brain. We used triple label immunohistochemistry in PR transgenic isoform specific knock-out mice. The results of our study will bring us closer to understanding how steroid receptor coactivators contribute to the differences of the mouse PR isoforms in brain and behavior.

**Determining the Role of Hedgehog Signaling Pathway during Limb Regeneration in the Red Flour Beetle, Tribolium castaneum**

Carla M. Villarreal ’13, Biological Sciences

Advisor: Yuichiro Suzuki, Biological Sciences

Despite studies performed on many species, including amphibians and insects, the mechanisms regulating limb regeneration remain poorly understood. Hedgehog (HH) is a major signaling pathway found in most, if not all, animal species, including humans. In vertebrates, HH signaling has been shown to play key roles during limb regeneration. To determine whether Hedgehog might also play a role during limb regeneration in Tribolium castaneum, HH signaling was silenced through RNA interference. HH silencing resulted in a complete loss of leg and antenna regeneration, indicating that the HH signaling pathway is necessary for the initiation of regeneration. Specifically, HH appears to be necessary for the growth of the blastema that forms at the ablation site. Studies on the role of Hedgehog in blastema proliferation and re-patterning of regenerating legs are currently underway. Overall, our findings suggest that HH signaling is a conserved mechanism for appendage development and limb regeneration across Metazoa.

**Investigating Electrical Stimulation Using Conducting Polymeric Materials for Peripheral Nerve Regeneration**

Ava K. Mokhtari ’14, Biological Chemistry

Advisor: Gillian Hendy (MIT), Biology

Last summer, I worked in the Langer laboratory at the Koch Institute at the Massachusetts Institute of Technology. My work focused on peripheral nerve regeneration, creating new biomaterials that were biocompatible and electrically conductive in vivo. Specifically, my research investigated the use of electrically conductive polymers as a means to hasten the regeneration of peripheral nerve cells to prevent otherwise inevitable muscle death in affected areas. The aim of my study was to design, synthesize, and form biodegradable conducting polymeric materials that can be electrically stimulated in vivo to encourage nerve cell regeneration and inhibit muscle atrophy.

**Going Insane in the Membrane: Investigating Protein-Lipid Interactions in the Elmore Lab**

*Science Center 277*

Maria E. Bustillo ’13, Biological Sciences

Alexandra L. Fischer ’13, Chemistry, Julia A. Klaps ’14, Biological Chemistry, Maria A. LaBouyer ’15, Biological Sciences, Jane E. Lodwick ’14, Chemistry, Penny Wang ’14, Chemistry, Amy Zhou ’14, Chemistry

Advisor: Donald Elmore, Chemistry

The Elmore lab is interested in understanding the interactions between proteins and the lipid membrane of bacterial and eukaryotic cells, in particular, antimicrobial peptides derived from histone protein subunits. These antimicrobial peptides selectively kill bacteria over normal mammalian cells, and some have been implicated as having anti-cancer properties as well. Through examination of a class of related peptides, we hope to elucidate the effects that a peptide’s primary structure have on its secondary structure and subsequent cytotoxic activity and mechanism of killing.

**Resonance Rhapsody: Solving Biomedical Problems with Magnetic Resonance**

*Founders Hall 120*

Our lab has focused on four projects: 1.) We are building a biofunctional nanoparticle which can be non-invasively visualized and have the capacity to selectively irradiate cancerous pancreatic tumors. 2.) Using magnetic resonance imaging (MRI) we are able to track the migration of anterior proliferation center (APC) cells to the neurogenic niche in Procambarus Clarkii crayfish. 3.) Our study of vocal learning uses blood oxygen level dependent (BOLD) MRI to identify the brain regions participating in song development in the zebra finch. 4.) Our last study utilizes magnetic resonance and diffusion tensor imaging as a tool to probe a genetic and epigenetic mouse model of schizophrenia.

**A Magic Bullet: Development of a Multifunctional Iron Oxide Nanoparticle for Targeted Tumor Therapy**

Eugenia White ’13 Chemistry, Zi Wei (Alice) Liao ’15 Biological Chemistry, Raji Nagalla ’14 Biological Chemistry

Advisors: Nancy H. Kolodny, Chemistry, Nolan T. Flynn, Chemistry, Drew C. Webb, Biological Sciences

The low survival rate and lack of surgical options for many cancer patients has necessitated the development of highly specific and potent potential drug therapies. Nanoparticles, spherical particles with diameters an order of magnitude smaller than wavelengths of visible light, are ideal for cancer therapeutics due to their small size, low toxicity, and high surface area to volume ratios. Our project focuses on the surface modification of superparamagnetic iron oxide nanoparticles to achieve biocompatibility and targeted drug delivery. Nanoparticles are characterized with magnetic resonance imaging (MRI) to determine their quality as contrast agents for tracking in vivo. Recent work has focused on coating iron oxide particles with silica and polyethylene glycol (PEG) to increase biocompatibility along with the conjugation of nanoparticles to monoclonal antibodies for targeting pancreatic cancer cells. (Research supported by Roberta Dey Staley Fund for Cancer Related Research, Sophomore Early Research Program, and the National Institutes of Health (NIH)).

**Tracking Cells from Blood to Brain: Using MRI to Study Neurogenesis in the Crayfish**

Yi Ling Dai ’13, Neuroscience

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

Contrary to popular belief, adult neurogenesis, the birth of new neurons during adulthood, has been observed across organisms ranging from humans to the crayfish. The neurogenic niche, a cluster of neural precursor cells, has been identified in our animal model, the crayfish Procambarus clarkii. We hypothesize that hematopoietic stem cells (HSC) from a newly discovered tissue, the anterior proliferation center (APC), serve as the basis for neural precursors.
in neurogenesis. Cells of the APC have been shown to display characteristics similar to those of stem cells. We employ magnetic resonance imaging (MRI) to track migration of APC cells labeled with superparamagnetic iron oxide particles (SPIOs) in Procambarus clarkii. (Research funded by the Staley Summer Award for Cancer-Related Research and the Howard Hughes Medical Institute)

MRI, DTI and Behavioral Paradigm to Explore a Genetic and Epigenetic Mouse Model of Schizophrenia
Palog Mouradian ’13, Neuroscience, Tamana Biary ’15, Chemistry
Advisors: Nancy H. Kolodny, Chemistry
One percent of the global population suffers from Schizophrenia, a chronic brain disorder that leads to behavioral, cognitive and social abnormalities. Although no specific cause has been identified, environmental, genetic and epigenetic factors have been implicated as possible factors. Our study attempts to validate a genetic and epigenetic mouse model for schizophrenia, GCPII/AAV. These mice have a genetic mutation that is hypothesized to cause diminished levels of the neurotransmitter glutamate, in hopes of modeling glutamate receptor dysfunction. We introduced a histone deacetylase enzyme to newborn mice to elicit epigenetic dysregulation. Magnetic Resonance Imaging and Diffusion Tensor Imaging are used to examine volumes of brain regions and the structural integrity of white matter tracts. A behavioral paradigm is also employed to test the mice’s sociability. Magnetic Resonance Spectroscopy was used to analyze neurometabolite levels. (Research supported by the Howard Hughes Medical Institute, the Provost’s Office- Margaret Clark Morgan Foundation and Anne Cohen Heller Professorship in the Health Sciences, and the Neuroscience program.)

Functional MRI for Vocal Learning and Memory in the Zebra Finch Model
Rachel Parker ’13, Chemistry, Sarah Zemlak ’14, Chemistry, Cara Borelli ’15, English
Advisors: Nancy H. Kolodny, Chemistry, and Sharon Gobes, Neuroscience
Songbirds provide a particularly useful cognitive model for human vocal learning and memory acquisition due to many established developmental, physiological, and genetic parallels with humans. Our work uses functional magnetic resonance imaging (fMRI) to study the process of vocal learning in the zebra finch (Taeniopygia guttata). fMRI allows us to locate the neuronal response to an auditory stimulus in real time. Because this method is noninvasive, it permits longitudinal studies. Our efforts thus far have focused on developing the appropriate methods for fMRI image acquisition and auditory management in songbird applications. These efforts include preliminary functional imaging experiments to investigate song learning in juvenile zebra finches. (Research supported by the Howard Hughes Medical Institute.)

Social Sciences

Beauty in the Eye of the Beholder
(Short talks) Pendleton Hall West 212
Commodification and Valuation of the Female Body in the New Orleans Slave Market
Elizabeth A. Brown ’13, History
Advisor: Ryan Quintana, History
By considering the economic valuation of slaves in the decade prior to the abolition of the transatlantic slave trade in 1808, this project reconstructs the narrative of African women within the slave markets of New Orleans: the largest slave trading site in North America. Female bodies were subjected to a persistent economic and ideological valuation by the varied actors who participated in the market – slave, trader and planter – who commodified and attempted to dehumanize the slave, necessarily and intentionally reducing enslaved women “to the simplicity of a pure form: a person with a price.” [1]

By considering the valuation and ownership of productive and reproductive labors as the abolition of the trade loomed imminent, this project considers the ways in which enslaved women countered this process, shaping their sense of self and exercising personal agency within the confines of the market.


Look at Me, Don't Look at Me: Body Image and Types of Narcissism
Katharine M. Hargreaves ’13, Psychology
Advisor: Jonathan Cheek, Psychology
The project examines the three faces of the narcissism construct – covert, overt, and adaptive – and explores how each of these relates to aspects of body image in a sample of 175 Wellesley students. Previous research found that overt and covert narcissism correlate in opposite directions with body esteem. The present study expands upon the previous research by assessing all three types of narcissism and using a wider range of body image measures including body surveillance, control, shame, and exhibitionism.

My Black is Beautiful: Exploration of Body Image in Students of African Descent
Temple R. Price ’13, Psychology
Advisor: Tracey Cameron, Office of Intercultural Education
Previous research suggests that women of African descent have relatively healthy attitudes about their appearance – especially those with a strong racial identity (Parker, Nichter, Nichter, & Vuckovic, 1995; Oney, Cole, & Sellers, 2011). This study was designed to be a quantitative assessment of the body image concerns of college-aged women. The current inquiry builds on a previous study that explored body image in other ethnic/cultural populations. For purposes of this study, I focused on students of African descent. Surveys were administered to participants about aspects of their body esteem. Preliminary findings, using SPSS for statistical analysis, indicate that women of African descent are particularly happy with their ethnically-salient features, such as noses or lips. Possible explanations for how women of African descent form body esteem in a western context will be discussed.

Really, You Find That Attractive? Explaining Differences in Tastes for Beauty
Ho Lum Kwok ’13, Psychology and Economics
Advisor: Jeremy Wilmer, Psychology
The notion that beauty is entirely “in the eye of the beholder” is inconsistent with findings of shared preference for faces, scenes, and other visual stimuli. Despite such convergence of taste, substantial individual differences also exist. In a study involving 316 twin pairs, we explored the degree to which genetic and environmental factors influence the uniqueness of individuals’ beauty preferences. The question was: What makes people more or less unique in who and what they find attractive? Our findings suggest that genes have minor influence, if any, on the uniqueness of one’s taste.
for faces, abstract objects, and real world scenes. Rather, most individual variations in preferences are the result of unique personal experiences. Interestingly, age and gender were not significant predictors of how idiosyncratic an individual's beauty preferences were. Results suggest that our quirky aesthetic preferences are large attributable to our unique experiences.

The current study draws methods and theoretical concepts from previous studies but investigates this phenomenon among minimal groups. Various techniques were used to test this prediction including the use of an Implicit Association Test (IAT) and classical conditioning.

The Disney Effect: An Examination of Disney Princesses and the Portrayal of Gender Roles
Michelle H. Cho ’13, American Studies
Advisor: Wendy Robson, Wellesley Centers for Women
Disney has become a dominant storyteller for children all over the world, and has proven to be very influential in fostering belief systems based on race and gender. The Disney Princess Franchise has attracted many young girls and has created a consumer culture. Despite Disney’s wholesome image, its “Princess Phenomenon” must be examined in order to question the gender roles that are being propagated. The Disney Princess products are more than entertainment, as the products are encoded with messages, which aid children in making sense of their world. What are the gender roles that Disney fosters through the Disney Princess Franchise? What messages is it sending to young girls and what are the consequences? (Research supported by the 2012 Summer Research Program in Social Sciences at Wellesley College)

John Locke and Modern Feminist Moral Psychology
Lillian Y. Li ’15, Undeclared
Advisor: Eugene Marshall, Philosophy
John Locke, a late 17th century British philosopher, wrote on liberty, will, and motivation. His past considerations parallel concerns of modern feminists. Concerns include: how does patriarchy interfere with female motivation and autonomy? Why might a woman act contrary to her beliefs? Offering a way think about these questions, I will examine Thomas Hill’s case of the Deferential Wife: she is someone who believes in gender equality, and yet who is proud to devotedly serve her husband. This relatively mundane, even happy, scenario is problematic for moral agency. Explaining why, I will approach the question: are women full agents with only authentic preferences or are women victims of psychological oppression with deformed desires? Finally, I return to Locke and his theories on autonomy to argue why his theories are relevant and even necessary to the future of feminist thought.

Origins of the Contemporary Construct of Gender
(short talks) Pendleton Hall East 139
An Evolutionary Bias: The Role of Gender in Fear Responses to In-group and Out-group Targets
Margarita B. Rabinovich ’13, Psychology
Advisor: Robin Akert, Psychology
A study conducted in the Sidanius Lab at Harvard University investigates fear of out-group males among minimal groups. Previous research has indicated that fear responses are acquired more rapidly and are more resistant to extinction when the target is a male from a racial out-group, as opposed to a male from a racial in-group or a female. The interpretation of these results suggests that this response is rooted in evolution.

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A History of Consumption and Advertising in China’s Women’s Lifestyle Magazine: A Closer Look at ELLE
Barbara F. Jiang ’13, Economics
Advisor: C. Pat Giersch, History
During the decades after the Cultural Revolution, consumption in China has experienced tremendous growth. Today, China’s luxury consumption accounts for 25% of the world’s total. At the same time, advertisements in China’s women’s lifestyle magazines have exploded. In 2012, ELLE began releasing two different issues each month to accommodate the high demand for advertising space. In this study, my research was focused on how the changing social environment in China was reflected in consumption habits and gendered advertising practices.

The Clash of Cultures (short talks) Pendleton Hall East 339
Katherine W. Cali ’13, History
Advisor: Brenna Greer, History
Despite the perception that financial aid is relatively new phenomenon, from Wellesley College’s founding in 1875, its benefactors made efforts to assist students unable to afford the cost of attendance. Founder Henry Fowle Durant hoped to open Wellesley to “calico girls” as well as wealthier “velvet girls,” and his supporters articulated their own visions of the financial aid student’s role and value within the College. Using the 1878–1899 and 1918–1926 reports of the Student’s Aid Society (SAS), I will explain how the SAS depicted financial aid students to its donors and analyze how and why these depictions changed over time, with reference both to Wellesley’s unique history and its broader social context. I will also explore how the SAS’s changing visions of financial aid students reflected the evolution of white, educated middle-class women’s expected societal roles—and of their actual experiences—from the Gilded Age through the Roaring Twenties.

Is Being Korean Cosmopolitan Possible? Exploring the Self-Identity and Worldview of Korean International Students at American Colleges
Ji-Su Park ’13, Sociology and Political Science
Advisor: Joseph Swingle, Sociology
Of what relevance is national identity to students who spend extended periods of
time away from their "home" nation? Is it possible for an individual to be nationalistic and cosmopolitan simultaneously? This study examines Korean students attending college or university in the U.S. These students grew up in a "one-blood" nation but now find themselves in a far more racially and ethnically diverse nation. My research explores how the U.S. experiences of these students influence their nationalistic versus cosmopolitan world-views. Data come from survey and interviews with Korean students across the U.S.

(Mis)representations of Hitler in India
Abigail R. Weitman '13, Peace and Justice Studies and South Asia Studies
Adviser: Neelima Shukla-Bhatt, South Asia Studies

With over 10,000 copies of Hitler's Mein Kampf sold in Delhi annually, Hitler has become somewhat of an unlikely celebrity in India. Indian T.V. shows, films, restaurants and clothing apparel stores have sparked controversy by the representations of Nazi insignia and glorification of Hitler's dictatorial leadership. In what setting has Hitler become of interest to the youth culture and why have lessons from the Holocaust been a disconnected narrative? In this presentation, I will share examples of Hitler's popularization in India and provide possible theories explaining where this interest in Hitler stems from.

Wearing Native: Misappropriated Indigenous Cultural Property in the Fashion Industry
Kalina Yingnan Deng '14, Philosophy
Adviser: Anastasia Kanakasidou, Anthropology

For First Nation peoples, native cultural property – aesthetic designs, rituals, and symbols – are intrinsically connected to their spirituality and to their sovereignty as indigenous people. However, fast fashion labels and haute couture houses alike have "borrowed" sacred native designs to cater to increased demands for "native" and "tribal" trends. A few examples of this exoticism in the fashion industry include Karl Kloss's wearing a decorated war bonnet in the 2012 Victoria's Secret Fashion Show; Ralph Lauren's romanticized "Southwestern" prêt-à-porter collections, and ASOS's marketing campaigns

Gender in a Transnational Context
(panel discussion) Jewett Arts Center 454
Re-Imagining Immigrant Identity
Formation within a Danish and American Context
Jenny Jean '13 Women's and Gender Studies
Advisor: Irene Mata, Women's and Gender Studies and Rosanna Hertz, Women's and Gender Studies

Forced or voluntary immigration forces individuals to renegotiate their identity as their psychosocial context changes. While forming a renegotiated identity may be uneventful for many immigrants, it may be more arduous for those immigrants whose physicality continuously marks them as "other." By examining the modes through which immigrants negotiate their identities through spaces of visibility and invisibility we can begin to understand the ways immigrants attempt to create a non-fragmented sense of self. We can also begin to understand how these tools of identity formation are both a product of and a challenge to the societal structure in which they find themselves.

Natural Disasters as Social Disasters: the Political Economy of Gender-Based Violence in Post-Disaster Settings
Monica Setaruddin '14, Psychology and Health & Society
Advisor: Irene Mata, Women's and Gender Studies and Rosanna Hertz, Women's and Gender Studies

Previous research demonstrates that natural disasters increase women's risk of violence. It has been surmised that poverty and lack of resources exacerbate gender-based violence. In addition to these factors, the political economy of gender inequality plays a crucial role in explaining why women are particularly vulnerable in post-disaster settings. Using a political economy framework to evaluate post-Haiti earthquake, South Asian tsunami disaster, Sri Lanka Tsunami disaster, and Hurricane Katrina, I will discuss the gendered impact of natural disasters. Its implications for gender-sensitive planning recommendations will also be discussed.

Chinese Women Leaders Against Oppression
Elizabeth Torres '14 Women's and Gender Studies
Advisor: Irene Mata, Women's and Gender Studies and Rosanna Hertz, Women's and Gender Studies

This paper is based upon an analysis of interviews collected by Professor Hertz about the lives of women founders of various NGOs in China. Along with historic events including, the Cultural Revolution, Tiananmen Square and the World Women's Forum, I will draw a parallel between the history of these NGOs and that of China. By studying these three generations of NGO women leaders who challenged organizational and cultural norms, I show how people or women who became leaders in China gained agency and learned how to navigate the Chinese government system, how to garner support, and how to lobby for the people they served. I suggest that it is the experiences they underwent -- not their personality -- that motivated them to become leaders. Therefore, my research lobbies for the historical, cultural, and gendered impacts of "experienced struggles" undergone by these women.

"Out of Many, One People": A Gender Analysis of Jamaica from Outside and Within
Wendy West '13, Women's and Gender Studies and Biological Sciences
Advisor: Irene Mata, Women's and Gender Studies and Rosanna Hertz, Women's and Gender Studies

Jamaica's national motto is “Out of Many, One People.” This aphorism embodies the diverse populations of people that identify with the Jamaican heritage. However, gender-based issues on the island arise out of the lack of representation of women in positions of power and an increased rate of sexual assault and gender-based violence. This gender-based violence is, in part, a result of the normalization of a hyper form of masculinity within Jamaican society. Returning to the country during Winter session helped me gain insight into the manifestations of this female marginalization and the feminist movement on the island attempting to redress these gender-based issues. As a Jamaican-born United States citizen, I have the unique experience of studying Jamaican culture through the lens of both an outsider and a partial member of the society, a positionality that allows for a complex analysis of gender in this Caribbean country.
How Language Reveals Us: Insights From Sociolinguistics (panel discussion) Jewett Arts Center 450
The Effects of Speaker Accent and Speech Content on Interpersonal Evaluations
April Crehan ’13, Cognitive and Linguistic Sciences and Italian Studies and Gretchen Larsen ’13, Cognitive and Linguistic Sciences
Advisor: Andrea Levitt, Cognitive and Linguistic Sciences and French

The distinctive qualities of each human voice allow us to instantly differentiate our sister from our mother, a good surprise from a bad one, and a local person from one who comes from out of state. To investigate the impact of accent and speech content on listeners’ perceptions of female voices, we had speakers of a Southern and a British dialect recite two types of speech samples each. These “passionate” and “dull” samples had a surprisingly large impact on how listeners perceived the status, solidarity and dynamism of the speakers.

#thatmomentwhen You Use a Hashtag and You’re Not Sure Why
Catherine Guo ’13, Cognitive and Linguistic Sciences and Ariel Robinson ’13, Cognitive and Linguistic Sciences & Middle Eastern Studies
Advisor: Andrea Levitt, Cognitive and Linguistic Sciences and French

Hashtags have been used since 2008 to organize and catalog “tweets” on Twitter, but in recent years, their use has expanded beyond this social media service. In our presentation, we will discuss how Wellesley students use hashtags on Twitter, Facebook, and Tumblr. We proposed four reasons for using hashtags: to promote the visibility of an idea, product, or cause; to comment on a previous statement; to make content searchable; and as a means of self-identification. Given the functional differences among the three platforms, we hypothesized that Wellesley College students would use hashtags differently depending on the social media site. While our results did not yield statistically significant differences in reasons for using hashtags, we did find patterns in rates of hashtag use between multiple platforms users and single-site users. These patterns highlight differences in hashtag use between casual and active users of social media.

Queering Sociolinguistics – What Heterosexual Marketplace?
Blake Desormeaux ’13, Cognitive and Linguistic Sciences and Sarah Vaughn ’15, Cognitive and Linguistic Sciences
Advisor: Andrea Levitt, Cognitive and Linguistic Sciences and French

The terminology of identity within the queer community is broad and varied. We polled a number of queer and non-queer students at Wellesley College to determine their levels of comfort with some queer identifying terms. Terms were classified as either general, reclaimed or slur. Our findings led to interesting inferences about the process of slur reclamation in the greater queer community and about the non-queer community’s understanding of queer identities. They also suggested several avenues for further research.

Perspectives on Social Issues I: Research from the Wellesley College Freedom Project (panel discussion) Founders Hall 126
The Green Libertarian: An Oxymoron or a New Species?
Ana Medrano Fernandez ’13, Economics
Advisor: Thomas Cushman, Sociology

Sustainability can be framed as issue of distributional equity. In understanding that natural resources can be depleted, we understand that our unregulated consumption today affects the ability of those in the future to consume. Governments often feel responsible to intervene and act on the behalf of the environment through cap and trade policies, subsidies and regulations. Libertarians dislike government intervention and prefer free markets. This poses the question: How would a libertarian deal with environmental concerns? In this presentation, I explore whether libertarian ideals and environmental sustainability concerns have any common ground.

Self-Employed: Exploring the Rationale Behind Legalizing Prostitution
Lavanya Ganesh ’15, Political Science and Economics
Advisor: Thomas Cushman, Sociology

Historically, representative political bodies have used their power as lawmakers to impose certain “righteous” social mores upon its people in order preserve the “values” of some bygone era. Libertarians consider this to be a form of state paternalism, which often results in laws that are unnecessary and which sometime result in unintentional negative social consequences. Laws that criminalize prostitution are of this nature, and I will explore arguments for legalizing sex work under an economic and philosophical perspective guided by the principles and ideas of classical liberalism.

A Market for Human Organs?: Global Considerations
Malika Govindan ’15, Biological Sciences
Advisor: Thomas Cushman, Sociology

While the current US government has priced organs at $0 and made their sale illegal, countries like Iran and Israel allow regulated organ selling. All of the nations in the modern world face pressing issues regarding human organs, ranging from long and impossible wait-lists to coercive organ donations. My research focuses on contrasting case studies, analyses by bioethicists, and a history of laws and bans regarding organ donation. This presentation focuses on solutions to the problems and issues surrounding organ donations that have been proposed by libertarians, in comparison with views from other political and philosophical positions.
Let's Go Europe
(4:30–5:40pm) Pendleton Hall East 339
Italian Women in the 1930s: From the Fascist Vision of Woman as Prolific Mother and Devoted Wife to Female "Otherness" in Alba de Césèdés’ There Is No Turning Back
Mariya Chokova ’13, French and Italian Studies
Advisor: David Ward, Italian Studies
In my project I analyze sexual politics in Fascist Italy in the 1930s and will provide an ideological overview of how fascism perceived women and their role in society. Of course, the official discourse did not reflect accurately Italian reality and there still remained many spheres of public and private life that Mussolini’s regime did not manage to infiltrate with its ideology. Alba de Césèdés’ novel There Is No Turning Back, published in 1938 and banned by the fascist authorities two years later, after having gone through a sensational nineteen editions, provides an alternative view of what women’s aspirations were and how they lived in Italy in the 1930s. Through an exploration of the “life stories” of the female protagonists in the novel, my aim is to observe how they conformed to, or contested, the official political discourse that defined fascist gender politics, relegating women to a subaltern social position. (Research supported by a Schiff Fellowship)

Editorial in Translation: Non-Native English Speaking Authors and the Role of the Editor on the Journal of Italian Cinema and Media Studies
Sydney S. Cusack ’14, English
Advisor: Flavia Laviosa, Italian Studies
The Journal of Italian Cinema and Media Studies (JICMS, published by Intellect Books) is a peer-reviewed English language journal that is a forum for debate over Italian film and media production, reception, consumption and interaction with other forms of cinema and media. Additionally, JICMS examines Italy as a geographical-cultural locus for contemporary debate on cinema both from and about Italy. For three semesters, I have worked as an Editorial Assistant for JICMS: my work focuses primarily on the updating the semantic, lexicon, and syntactic choices that authors have made and revising their work so that it will be published in its best possible form. I will discuss the core mission of JICMS, my contributions to the journal, and my deepened understanding of both the Italian and English languages that I have gained from reviewing English texts written by non-native English speakers. (Work supported by a grant from the Wellesley College Provost’s Office).

The French Republic, “Eldest Daughter of the Church”?: La Morale Républicaine of 19th-Century Secular Instruction and Its Catholic Roots
Elizabeth A. Yazgi ’13, French and History
Advisor: Venita Datta, French
This project uses the secular school of nineteenth-century France to understand one of the “pillars” of French identity—la laïcité, or the separation of Church and state. Solidifying itself through anticlerical policy, the French state reified the notion of a Republic-Church opposition. The secularized school and its morale républicaine became instrumental in this process. An analysis of the textbooks which preached this morale républicaine, however, reveals the continuities between the latter and Christian principles. At the same time, an examination of the political debates surrounding school secularization suggests a reason for the obfuscation of such continuities. By unmasking these, I will introduce a more nuanced appreciation of la laïcité and the role of French anticlericalism in shaping conceptions of the Republic.

Shipwrecks and Trade in the Archaic Mediterranean
Haley E. Bertram ’13, Classics
Advisor: Bryan Burns, Classical Studies
Shipwrecks in the Western Mediterranean are a valuable but complex source of evidence of Archaic exchange. The wrecks yield information about the goods being traded and potential exchange routes. However, the variety of content and scale of the cargos, in addition to loss of material caused by looting and 2,500 years under water, complicate the interpretation of the archaeological evidence. My senior thesis examines the nature of early exchange between Greeks, Etruscans, and indigenous populations of the Western Mediterranean through the lens of Etrusco-Corinthian fineware pottery as a non-subsistence commodity. In comparison with other shipwrecks, the Pointe Lequin 1A shipwreck has an exceptionally large quantity of fineware pottery. Consequently, the wreck can be used as a unique case study in order to consider fineware pottery and its place in early exchange.

Good nonsense creates a multitude of tensions; it complicates the relationships of syntax and language, meaning and interpretation, and, in the question of its origins, literature and folklore. In spite of a significant body of medieval nonsense in both drama and poetry, most criticism erroneously treats “literary nonsense” as a discrete Victorian phenomenon. Other critical veins emphasize nonsense’s universality—though deeply intertwined with human psychology, the medieval and folkloric nonsense tradition relates to the Victorian much more concretely. This connection has not yet been grounded in literary, academic analysis; I forge this connection this thesis. Overlooking the distinctly literary historical traditions embedded in modern nonsense oversimplifies the genre, inappropriately diminishing the continual literary relevance of medieval nonsense. Using the appearances of nonsense in medieval performance as a contextualizing lens, I elucidate the relationship of medieval nonsense to Victorian, particularly through conserved folkloric motifs and a performance-derived spirit of celebration. (Research supported by a Schiff Fellowship)

With So Good A Woman: The Nature of Love and Violence in Genre in Shakespeare
Kelsey A. Ridge ’13, English and East Asian Studies
Advisor: Venita Datta, English
In Shakespeare’s Much Ado About Nothing, Othello, and Cymbeline, one senses a common thread: men who falsely suspect that their female partners of sexually infidelity. However, despite the similarity of their original offense, each man is punished differently, and these plays reach startlingly different outcomes and falls into a different genre. Scholars have long wondered why. Examining the plays reveals important dissimilarities between these men, their partners, and their relationships, and as the plot and the characters unfold, the couples are driven towards diverse endings. Claudio, barely punished, gets a happy ending. Othello, though, is brutally punished. Finally, Posthumus, also roughly punished, finally understands how to redeem himself and save his marriage. By
rewarding some actions and choices with happy endings and condemning others to sorrow and death. Shakespeare paints a picture about the importance of a certain kind of love and bond in a healthy and strong relationship.

Poetry: The Scientific Method’s Missing Step

Sharon Tai ’13, English and Economics

advisor: Kathleen Brogan, English

Once mingled, science and poetry diverged as our understanding of the world sharpened and advanced. Now considered antitheses, these two types of thought rarely meet. The poems of Marianne Moore and A.R. Ammons undermine this widely-held opinion by demonstrating how science can function as a means of communication. Without sacrificing the merits and cultural purposes of poetry, both these poets fully integrated scientific vocabulary and concepts into their poems. Despite their shared scientific regard, Moore and Ammons’ works differ greatly. Moore wished to communicate the idea of observable but ineffable principles, and turned to science to compensate for the failings she perceived in language. Her post-modern successor Ammons demonstrated an infallible faith in language, viewing scientific jargon as simply another list of words to be used in the verbal capture of his observed surroundings. Through these two poets’ works, their craft functions as the intermediary between scientific observation and hypothesis.

Henry IV Part 1: Provenance and Performance

Hilary J. Gross ’13, English

advisor: Yu Jin Ko, English

Directing the Shakespeare Society’s production of Henry IV Part 1 both informed, and was informed by, my research of the play’s provenance and critical reception. While no one denies that Henry IV is a rich play both critically and theatrically, arguments regarding its protagonist and genre are far more contentious: Hal is the only possible lead, or his father is, the play is just a comedy, or just a tragedy. But in each case, both are, or at least can be, true. So we attempted to maintain the dynamic balance of Shakespeare’s text in performance: rather than choosing one of four major characters to feature in the lead role (either Hal, Henry, Hotspur, or Falstaff) or between genres to elevate (namely drama, comedy, or tragedy), we tried not to choose. If Shakespeare didn’t, then neither would we. That challenge belonged to the audience.

From Sumo to Ofuro: An Exploration of Japanese Culture & Society

(panel discussion) Jewett Arts Center 454


advisor: T. James Kodera, Religion

During our Wintersession in Japan, our class travelled around the country for three weeks, exploring the many different aspects of culture composed of both modern and ancient thoughts, beliefs, and practices. We walked the neon-soaked streets of Tokyo, relaxed in the traditional and restorative waters of Miyajima, experienced the spiritual atmospheres of both Buddhist temples and Shinto shrines, and commiserated with the atrocities presented in Hiroshima and Nagasaki. Our diverse group researched about several cultural and social aspects of Japan, including but not limited to environmental influences on Shinto architecture, the plight of the minority Baraku and Zianichi Koreans, the uncertain employment prospects for recent university graduates face, political tensions concerning the war-memorial in Yasukuni Shrine, and the unique religious and historical perspectives on abortion in Japan. The panel will present on these myriad topics in order to provide a wide-reaching introduction to different aspects of contemporary Japan.

The Master of Nuevo Tango: Astor Piazzolla

(long performance) Jewett Arts Center-Auditorium

Ji Yeon Kim ’15, East Asian Studies, Hui Li ’16, Undeclared, Claudina X. Yang ’14, Philosophy

advisor: Jenny Tang, Music

Astor Piazzolla was an Argentine composer, and perhaps the most renowned tango musician in the world. He revolutionized the traditional tango, incorporating elements of jazz and classical music, creating a new style termed nuevo tango. The presentation will explore the breaking away from traditional modes of tango music, and its evolution into a highly individualized style of new wave sounds, influenced by a wide array of Western musical elements such as jazz, improv, and contemporary forms that have proven to be wildly successful. The presentation will be followed by a musical performance of his three well-known piano trio works.

Science and Technology

Biological Chemistry Program Honors Thesis Research Talks

(panel discussion) Pendleton Hall West 117

Biofilms and Light Signaling in Synechocystis sp. Strain PCC 6803

Zihan Dong ’13, Biological Chemistry

advisor: Mary M. Allen, Biological Sciences, Jean Huang and Rebecca Christianson, Biology and Physics (Olin)

Biofilms are how bacteria naturally exist in nature-enclosed in an extracellular matrix of protein and polysaccharides. The biofilm state protects bacteria against environmental stressors, such as antibiotics and biocides. Confocal microscopy was used to analyze the development of biofilms of two strains of Synechocystis sp. strain 6803, a wildtype and motile mutant, which were grown in flow cells. A significant difference was found in terms of their biofilm structures and growth, with wildtype biofilms being lower in height and not exhibiting dense clusters compared to the motile strain. The genomes of both strains were sequenced and then characterized for genetic differences. We also explored the ability of the motile mutant to move towards light, known as positive phototaxis. Our goal was to find the physical conditions required for maximal positive phototaxis in the motile strain.

Regulation of Levels and Localization of the Enzyme Thimet Oligopeptidase in Prostate Cancer Cells by Steroid Hormones

Christa C. DeFries, ’13, Biological Chemistry

advisor: Adele J. Wolfson, Chemistry

The enzyme thimet oligopeptidase (TOP) has the ability to cleave many peptides integral to important biological processes. One of these is gonadotropin-releasing hormone (GnRH), levels of which control the amounts of estrogens and androgens the body produces. To determine the role TOP may play in control of androgen and estrogen production, I treated human prostate cancer cells with varying concentrations of β-estradiol, an estrogen, and evaluated how this treatment

4:30–5:40pm
affected cellular TOP levels and localization. Androgens and estrogens have enormous influence on human reproductive function and behavior, and abnormal regulation of these hormones contributes to many diseases. If it is true that TOP influences the production of androgens and estrogens, TOP could be an important component in the process of human reproductive regulation. (Fundedy by the Roberta Day Staley and Karl A. Staley Fund for Cancer-Related Research Awards)

**Signaling Mechanisms and Physical Structure of Biofilm Growth in**

**Synechocystis sp. Strain PCC 6803**

Jennifer E. Fishbein '13, Biological Chemistry

**Advisor:** Mary M. Allen, Biological Sciences

Many bacterial species, including the cyanobacterium Synechocystis sp. Strain PCC 6803, use the formation of biofilms as a survival mechanism. Biofilms are cell aggregates, which act as a protective barrier by providing nutrient access, increased drug tolerance and metabolic by-product sharing. Biofilms can form both in nature and in human infections, where they are very antibiotic resistant and thus particularly difficult to treat. To form biofilms, many bacterial species use a communication system involving chemical signals. In this study, we investigate the cell-cell communication of this cyanobacterium. The physical structure of the biofilms is also being analyzed. The wild type non-motile cells form a uniform monolayer biofilm while the super-motile mutant cells form pillar shaped biofilms that spread across the surface. Our goal is to gain a better understanding of this ubiquitous and diverse bacterial survival strategy. Research supported by a Jerome A. Schiff Fellowship.

**Probing the Arabidopsis thaliana chloroplast outer envelope proteome and interactome**

Emily M. Shortt '13, Biological Chemistry

**Advisor:** Gary C. Harris, Biological Sciences

Chloroplasts perform a variety of critical functions in plant cells, including lipid metabolism, protein synthesis, and photosynthesis. For the cell to operate smoothly, these important functions must be effectively integrated and regulated with other processes in the cell. This necessitates the existence of extensive intracellular communication networks. Recent work in a variety of organisms has revealed that networks of protein-protein interactions form the core of most intracellular communication. Efforts to understand how the chloroplast fits into the plant cell’s protein-protein interaction network require an accurate inventory of the chloroplast outer envelope protein population (proteome), which we have worked toward by developing methods to isolate this membrane and identify proteins by mass spectrometry. To detect protein-protein interactions between the chloroplast and other cellular proteins, we have used protein microarray technology with intact chloroplasts as the probe. We have also used bioinformatic tools to generate a virtual chloroplast outer envelope interactome.

**Factors Influencing Neurogenesis in the Crayfish, Procambarus clarkii**

**Advisors:** Zain Fanek '13, Neuroscience and French, Isabelle Gell-Levy '13, Neuroscience, Jingjing Li '15, Neuroscience

**Advisor:** Barbara Belz, Neuroscience

The crayfish *Procambarus clarkii* is capable of neuronal production in the adult brain. The lineage of neuronal precursors produces cells that will differentiate into oligfactory interneurons. However, the 1st-generation neuronal precursors (stem cells) are not self-renewing, and we are therefore hunting for the source that replenishes these stem cells. Our evidence suggests that the hematopoietic system is one source of these cells. Our specific projects therefore focus on defining the relationship between the hematopoietic system and the lineage of cells producing the adult-born neurons. Serotonin, a neurotransmitter, is known to increase the niche cell population. The goals of current research projects are to (1) define the circadian rhythm of serotonin production in the brain using high performance liquid chromatography, (2) test the relationship between the number of hemocytes (blood cells) and niche cells, and (3) characterize cells in the hematopoietic system that are believed to provide the neuronal precursors.

**Food is Not Trash: Redefining Wellesley’s Waste Culture by Composting**

**Advisors:** Nolan Flynn, Chemistry

Nanotechnology is the study of materials on the nanometer length scale. Our group explores this area of chemistry as it pertains to biomedicine and nanotechnology. In collaboration with other chemists and biologists, we are creating a multi-purpose nanometer-sized particle that
can target, image, and destroy pancreatic cancer cells. One aspect of this project is creating the core and shell of the particles as well as the functionalizing the shell. Our lab also works on the creation of electrochemically active gold nanoparticles. One of our goals is to use electrochemistry to trigger the assembly of gold nanoparticles into three-dimensional structures. (Research supported by NIH, a Schiff Fellowship, Staley Fund, and Wellesley College)

**Wellesley Global Medical Brigades: Honduras, Potrerillos and Guanacaste**

(panel discussion) Science Center 278

Nour J. Abdulhay ’14, Biological Sciences, Yi Ling Dai ’13, Neuroscience, Kristina X. Duan ’15, Undeclared, Catherine J. Ha ’13, Anthropology, Victoria M. Nguyen ’13, Spanish, Ji I. Shin ’13, Neuroscience

**Advisor:** James Moyer, Chemistry

Global health disparities are a growing concern and need immediate attention. Wellesley’s chapter of medical brigades is the only existing active all women’s chapter of Global Brigades, the world’s largest student-led global health and sustainable development organization. A group of 29 Wellesley students as well as two healthcare professionals successfully completed the college’s first ever medical brigade in Honduras in January 2013. Our organization was able to attend to 640 patients in two different communities.

**Social Sciences**

**Our Colleges, Ourselves: Peer Effects of College Students**

(short talks) Pendleton Hall East 139

**Revisiting Race and Class in Higher Education**

Danielle A. Callendar ’13, Africana Studies

**Advisor:** Lee Cuba, Sociology

Much of the literature on race and higher education neglects to discuss fully the gains black students make during their undergraduate careers. This study seeks to fill this void by focusing on black students at five highly ranked, highly selective liberal arts colleges. It will offer a view of how these students navigate their college campuses and develop their professional and academic goals during and after college. Essentially, the study aims to provide a more nuanced perspective on the influence of race and class on college student academic decisions.

**How Women Experience and Acquire Privilege in Elite Liberal Arts Colleges**

Priscilla D. Gutierrez ’13, Sociology

**Advisor:** Lee Cuba, Sociology

Researcher Shamus Khan understands “privilege” as the ability to be at ease in a multitude of social situations and to function easily within these situations. While it is a skill proven to be desirable in both school and the job market, only certain lifestyles and institutions, such as elite boarding schools, have traditionally fostered its development. My thesis research looks at the acquisition and experience of privilege among female students on elite liberal arts college campuses, both single-sex and co-educational. Using longitudinal data from the New England Consortium on Assessment and Student Learning (NECASL), I compare the ways in which female students of different races/ethnicities and socioeconomic statuses experience and acquire privilege. Ultimately, I seek to determine whether this type of embodied cultural capital becomes a tool of social mobility or social reproduction in the lives of college students. (Research supported by a Schiff Fellowship)

**Why Women’s Colleges?: Reassessing the Benefits of Single-Sex Higher Education for Women**

Teresa K. Wisner ’13, Sociology

**Advisor:** Joseph Swingle, Sociology

In the United States today, young women have access to virtually all of the country’s best colleges and universities. However, research suggests that single-sex education may still be beneficial to women in ways that co-education is not. Women’s colleges encourage students to pursue non-traditional career paths, offer more female role models and mentoring opportunities, provide more leadership experiences on campus, and cultivate generally supportive campus environments. My thesis research examines the experiences of female students at Wellesley, Smith, Bowdoin, and Bates College, looking specifically at students’ major choices, personal aspirations, extracurricular involvement, and social lives to address the question of whether women’s colleges are truly more positive places for women. Ultimately, I find that single-sex colleges are exceptional at nurturing confident, successful young women, and suggest that co-educational institutions should look to women’s colleges as exemplary models of supportive environments for female students.

**Ideological Diversity and Student Experiences at Wellesley College**

Zoelle S. Malenbaum ’13, Economics

**Advisor:** Thomas Cashman, Sociology

Wellesley is full of strong-minded women with equally strong political views. While conventional wisdom might suggest otherwise, students’ views are not homogeneous across campus. This study, based on an Independent Study in the Department of Sociology, explores the relationship between students’ political ideologies and their experiences at Wellesley College. Central questions of the study include: Are students with certain ideologies more likely to major in certain departments? How do ideologies shape connections and experiences with professors and other students, both in and out of the classroom? Do students with dissident ideological views have a different experience of Wellesley College than those whose views are more mainstream? What is the relationship between a student’s political ideology and her sense of belonging? This study is based on a sample survey of students across campus in order to shed light on these questions. Based on the research, I suggest strategies for informing College policy in order to enhance appreciation and respect for the intellectual and ideological diversity of students at Wellesley.

**Suffering and Sadness: Life after Traumatic Events**

(short talks) Pendleton Hall West 212

**Effect of Pathology on Cognitive Outcome after Anterior Temporal Lobectomy for Treatment of Epilepsy**

Brigid E. Prayson ’14, Psychology

**Advisor:** Jennie Pyers, Psychology

There are many known risk factors that may increase one’s risk of cognitive decline following surgical treatment for epilepsy. This project examined the potential risk factor of pathology on cognitive outcome in patients who underwent anterior temporal lobectomies. Specifically, patients with mesial temporal sclerosis (MTS) were compared to patients with dual pathology of both MTS and focal cortical dysplasia. Retrospective statistical analysis was performed on 63 cases using neuropsychological data obtained from routine pre- and post-operative evaluations for epilepsy surgery. Results indicate that there were significant 2-way interactions.
(group x time) on several language and memory measures, suggesting that dual pathology might lead to a more favorable postoperative cognitive outcome than MTS only. Potential implications will be discussed.

**Crime or Custom? The Questionably Inmmortal Practice of Female Genital Mutilation**

*Shruthi V. Kumar ’16, Undeclared*

*Advisor: Thomas Cushman, Sociology*

Every year, 130 to 150 million girls are subject to Female Genital Mutilation (FGM), a painful ritual that involves the cutting of the external genitalia in order to protect a woman's chastity. Not only does this ritual perpetuate gender discrimination, but it also puts women at the risk of disease. Regardless, FGM is still regarded as a significant rite of passage for young women. But do we have the right to label this practice as immoral? Cultural Relativists would argue that activists do not have the right to judge groups that regard FGM as "custom", because morality is culturally dependent; while Universalists would argue that FGM breaches the inalienable rights of women. This presentation will explore the ongoing debate between cultural relativism and universalism, in the context of FGM in rural Somalia. This sociological study will help foster a better understanding of why FGM continues to be a human rights issue, and offers potential solutions to the problem.

**Women's Rights in the Face of Acid Attacks: A Case Study of the Tensions between Relativism and Universalism**

*Alice Y. Liang '16, Undeclared*

*Advisor: Thomas Cushman, Sociology and Inela Selmovic, Spanish*

Individual members of Islamic fundamentalist groups in areas such as Gaza and Kashmir have recently thrown acid at women for not wearing hijabs, justifying their attacks as a response to the violation of Shari'a law. Not only do these attacks strip a woman's agency, they cause lifelong scars and stigmatization. Such violations of human rights pose an ethical dilemma. I argue that human rights and Shari’a law are not mutually exclusive. It is possible to protect women's bodily rights, while respecting the cultural and religious context in which women live. Resolving the necessary tensions between universalism and relativism demands complex cultural negotiation. This presentation will explore strategies of stopping acid attacks within the context of powerful cultural inducements that normalize violence against women's agency.

**The Child is Father to the Man (short talks)**

*Science Center 396*

**Preschool Peer Pairs: What Predicts Friendship Development?**

*Paula K. Yust '13, English and Psychology*

*Advisor: Tracy Gleason, Psychology*

Early friendships are important for later socio-emotional development. Many friendships are reciprocated, but some preschoolers' nominations of friendship are not returned. These unilateral relationships are thought to be precursors to reciprocated friendships. I looked at whether characteristics of children, such as social competence and peer acceptance, and peer dyad characteristics, such as similar interests and relationship features (e.g., amount of support) were positively predictive of unilateral friends becoming reciprocal friends. I interviewed 82 preschoolers twice about their friendships and observed the children to see who frequently played together. Teachers also completed questionnaires on social competence and relationships characteristics. I hypothesized that unilateral friendships between children who had high social competence levels, similar peer acceptance levels, played together frequently, or had positive relationship features would be more likely to become reciprocal friends than unilateral pairs without these characteristics. (Research supported by a Schiff Fellowship)

**What Do You Want to Play? The Effect of Teacher Presence and Children's Gender on Social Influence**

*Kathryn C. Goffin '13, Psychology*

*Advisor: Linda Carli, Psychology*

Early in life, children learn about social rules and gender norms through observations of others and their own interactions with peers. Children learn that men and women hold different social roles and exert different amounts of social influence. Additionally, children's choices are directly and indirectly influenced by their parents' and teachers' actions. I explored how the gender of children and the presence of a teacher affect social influence in preschool-aged children. Children watched puppet shows in which a child puppet preferred one version of a toy over another; the shows were presented either with or without a teacher puppet present. Each child's toy preference was recorded. Examining how children react to boy or girl puppets with the presence of an adult will further our understanding of social influence in children.

**The Relationship between Altruism and Display Rules: Selflessness and Prosocial Tendencies in Preschool Children**

*Natalie E. Benjamin '13, Psychology and French, Meredith G. Healy '13, French and Psychology*

*Advisor: Jennie Pyers, Psychology*

Our research examines the relationship between altruism, which is defined as selfless concern for others, and the understanding of display rules, which dictate the social appropriateness of displaying certain emotions, in preschool children. Previous research suggests a link between these two variables, as they are both related to prosocial tendencies. We devised unique behavioral methods to target and measure preschool children’s understanding of these concepts, including a task measuring children’s helping behaviors, and a task examining their reactions to undesired gifts. We found that children who display helping behaviors, thus acting altruistically, are more likely to show an understanding of display rules, confirming our hypothesized link between the two tendencies. Our presentation will explore our process and findings, and will address why we believe this link is important for the understanding of child development.

**Theory and Research on Freedom: Perspectives on Law, Feminism, and the Professions**

*(panel discussion) Jewett Arts Center 452*

**Disciplining Intimacy: A Theoretical Exploration of the Relationship Between Stigma and Intimate Labor**

*Rachel Davis '13, Philosophy*

*Advisor: Thomas Cushman, Sociology*

"Intimate labor" refers to forms of labor that maintain precise social relations between a worker and multiple customers. This includes occupations like child care, sex work, and domestic care. Intimate
laborers provide services that expose them to sensitive personal information about their clients. Many forms of intimate labor are highly stigmatized, and my research examines the way in which stigmas attached to intimate labor are mitigated through processes of professionalization. I posit that, via their exposure to many people's personal information, workers performing unprofessionalized and under-regulated intimate labors become “nodes” of counter-discourse that constitute sites of aggregated counter-discursive knowledge. I argue that unprofessionalized intimate labor's threat to dominant discourses (e.g. normalizing discourses of sex, childhood, bodily appearance) is neutralized, in the short term, by the discrediting effects of stigma and, in the long term, by professionalization (and, consequently, absorption into normalizing discourses themselves).

**A Critical Inquiry into the Meaning of Freedom and Essence in Feminist Thought**

*Marilynn Willey ’14, Classical Civilization*

*Advisor: Thomas Cushman, Sociology*

I will present my research on feminism as it relates to the philosophical concept of essence and the broader intellectual context from which contemporary feminist doctrines have emerged. My focus is on the relationship between essence and freedom, autonomy, and individualism. I argue that feminist philosophy breaks from traditionalist views of freedom—especially classical liberal views—and instead is derived from a modern post-structuralist viewpoint in which liberation from essence, as opposed to perfection of essence, is a required component of freedom for individuals. In analyzing this aspect of the feminist movement, I will focus on three questions: what “essence” means in the post-structuralist intellectual context; what it means in feminist doctrine; and the effects of this theoretical “liberation from essence” in political movements and social policy in the real world. I argue that the classical liberal ideal—which lies more in the perfection of essence—might be a worthwhile and more nuanced approach to feminism.

**The Boundaries of Law: Libertarian Arguments Against Legal Paternalism and Legal Moralism**

*Xueyin Zhang ’16, Undeclared*

*Advisor: Thomas Cushman, Sociology*

What are the limits of the law? Admittedly, without the rule of law we are doomed to live a life that is, in Hobbesian terms, “nasty, brutish and short”. With too much law, however, we risk being encased in what German sociologist Max Weber called the ‘iron cage’ of legal rationality that vitiates democratic engagement and autonomous decision-making. The use of law as a tool to promote moral ideals or enforce moral obligations overlooks the inherent tension, as noted by Max Weber, between formal law and substantive values. In this presentation, I offer arguments against legal paternalism and legal moralism, and advocate for a legal system that, in Isaiah Berlin’s words, “sets the frontiers within which man shall be inviolable”.

**Three-College Collaboration Wintersession Program: “Consulting with Practically Green”**

*(panel discussion)*

*Jewett Arts Center 450*

*Benjamin Cardarelli ’15, Finance and Strategic Management (Babson), Victoria C. Rines ’15, Biological Sciences, Carla The ’15, Psychology, Vikki Tie ’15, Political Science*

*Advisor: Janice Yellin, Art History (Olin)*

How do students from very different educational institutions learn to work together effectively as a team? This past Wintersession, as participants in the Three College Collaboration (Babson, Olin, Wellesley), twelve students from the three respective colleges lived, ate and worked together to participate in a two-week project to help introduce Practically Green, a Boston start-up company that uses social media to encourage more sustainable practices, to college campuses. As student consultants, we conducted surveys and interviews with students, faculty and staff across all three campuses. Results were explored and analyzed to produce a final proposal regarding the viability of Practically Green’s entry into the college market at this time. We will also discuss how our diverse backgrounds and institutions’ different educational emphases sometimes led not only to ‘collisions’ that ultimately generated new, creative ideas, but that our institutions also gave us tools for successful collaborative problem solving.

**China’s Search for Modernity: A View of Shanghai and Beijing**

*(panel discussion)*

*Founders Hall 126*

*Xiaolu Han ’14, East Asian Studies, Kat Yong Keung ’14, Economics, Irene C. Kwok ’14, Computer Science and Chinese Language & Literature*

*Advisor: Mingwei Song, East Asian Languages & Literatures*

Our presentation will examine the role globalization has played in the development of the modern Chinese city. We will primarily be focusing on two of China’s growing metropolises—Beijing, the country’s political capital, and Shanghai, China’s economic center. We will begin with a discussion about the human rights violations surrounding the Beijing 2008 Olympics and segue into the changes both the city and its people have undergone since China’s momentous unveiling to the world. We will then move to Shanghai where we will explore, through various novels and films, the effect commercialization has had on youth culture and self-identity. Ultimately, we will delve into the ideas of femininity, generational gaps, materialism, sexuality, and foreign influence in order to present a more comprehensive image of an ever-changing China.

**Here: Honor Killings in the United States**

*(film screening)*

*Founders Hall 120*

*Sarah G. Trager ’13, American Studies and Jewish Studies*

*Advisor: Jennifer Musto, Women’s and Gender Studies*

Last Spring, I conducted an independent research project where I examined the cultural practice of honor killings, specifically focusing on the ones being committed in the United States. I reviewed scholarly articles, watched documentaries featuring victims and their families as well as interviewed two sociologists who are familiar with this field. The culmination of my research is a short film which presents all views expressed publicly in the United States about this horrific practice. It is meant to be informational and demonstrate how little America has yet to discover about how to prevent these murders from occurring in the future.
STUDENT INDEX (BY CLASS)

2013

Margaret T. Ligon '13 ........................................... 22
Katherine E. Limoncelli '14 .................................. 27
Veronica J. Lin '15 .................................................. 34
Gabrielle C. Linnell '13 ......................................... 26
Larissa Litch '14 (Olin) ........................................... 22
Jeremy Liu '13 (Babson) ........................................... 33
Lucy Y. Liu '13 ....................................................... 28
Serena Liu '13 ......................................................... 26, 34
Sirui Liu '13 .......................................................... 34
Yu Liu '13 ............................................................. 32
Jane E. Lodwick '14 ................................................. 44
Simra Lohi '13 ......................................................... 22
Kara Y. Lu '14 ........................................................ 34
Renee Lu '15 .......................................................... 21
Rebecca P. Lucas '14 ................................................. 40
Evan W. Ma '13 ....................................................... 24
Celeste Maisel '14 (Olin) ......................................... 22
Hayley E. Malkin '13 ................................................. 52
Zoelle S. Mallenbaum '13 ........................................ 52
Laura C. Marin '13 .................................................. 20
Nevarath Mathialagan '15 ....................................... 20
Laura B. Mayron '16 ................................................ 29
Rebecca D. McClain '13 .......................................... 51
Molly E. McNamara '15 ......................................... 21
Kelly A. Mercer '13 .................................................. 26
Gertrude (G.G.) Merkel '13 ...................................... 31
Roxana Mir '15 ....................................................... 24
Elena S. Mironciuc '13 ............................................. 30
Mehwish A. Mirza '15 .............................................. 35
Ava K. Mohktari '14 ................................................. 44
Morgan E. Moore '15 .............................................. 29
Palig Mouradian '15 ................................................ 45
Lamiya B. Mowla '13 .............................................. 33
Audrey E. Mutschlechner '13 ................................... 51
Raji R. Nagalla '14 ................................................... 44
Prerana Nanda '14 ................................................... 49
Elin R. Nelson '13 ..................................................... 25
Victoria M. Nguyen '13 .......................................... 52
Maria Nikitin '13 ..................................................... 26
Eugenia S. Nizkorodov '13 ...................................... 51
Julia A. O'Donnell '15 .............................................. 25
Morgan E. O'Grady '15 ............................................ 23
Christine Yeh Jih Oh '13 .......................................... 32
Johanna L. Okerlund '14 ......................................... 28
Ana K. Orzio '14 ....................................................... 41
Emma D. Page '16 ................................................... 49
Ji-Su Park '13 ........................................................ 46
Rachel L. Parker '13 ................................................ 46
Emma V. Payne '15 ................................................... 21
Danielle C. Milagre Pimenta, Senior Davis Scholar .... 29
Justin Poh '16 (Olin) ................................................. 33
Ilana R. Pollack '13 ................................................... 32
Ashley J. Porras '14 .................................................. 32
Subhangini Prakash '13 (Babson) .............................. 33
Brigid E. Prayson '14 ................................................. 52

Temple R. Price '13 .................................................. 45
David Pablo '15 (Olin) .............................................. 22
Sara M. Putterman '13 ............................................. 21
Helena W. Qi '14 ...................................................... 28
Jane Qu '13 ........................................................... 37
Kim A. Quarrantello '13 .......................................... 23
Margarita B. Rabinovich '13 .................................... 46
Elze Rackaityte '13 .................................................. 28
Milena Radoman '15 ............................................... 22
Sahitya C. Raja '15 .................................................. 22
Tiana E. Ramos '13 .................................................. 51
Shaheen I. Rangwalla '13 ........................................ 43
Celia C. Reyes '16 .................................................... 29
Morvareed E. Rezai '14 .......................................... 25
Lauren M. Richmond '14 ......................................... 24
Lindsay S. Rico '13 ................................................... 54
Victoria M. Rines '15 ............................................... 20, 49
Nathalie Rivas '15 .................................................... 22
Kelsey A. Ridge '13 .................................................. 40
Shelby B. Robertson '13 ............................................ 25
Ariel M. Robinson '13 .............................................. 48
Brigette C. Roper '16 ................................................. 50
Rebecca J. Rubinstein '15 ........................................ 41
Elsa Sebastian '13 .................................................... 51
Gabriela M. Salcedo '15 ........................................... 41
Catalina Santos '13 ................................................... 24
Sierra Sarnataro-Smart, Senior Davis Scholar ............ 35
Stephanie G. Schmitt '13 .......................................... 51
Hailey N. Scofield '13 .............................................. 43
Monica A. Serraturdin '14 ........................................ 47
Connie C. Shen '14 ................................................... 39
Ji I. Shin '13 ........................................................... 52
Emily M. Shorri '13 .................................................. 31
Katherine E. Shulenberger '14 ................................ 22
Katherine A. Siegel '14 ............................................ 41
Sukin Sim '16 ........................................................ 31
Sara M. Simon '13 .................................................... 40
Asia C. Sims '14 ...................................................... 39
Katherine A. Smiley '14 .......................................... 34
Ada P. Smith '13 ....................................................... 27
Sta Smith-Miyazaki '13 ............................................ 40
Polina N. Soshnin '14 .............................................. 31
Nicole A. Spiegelman '13 ......................................... 21
Samantha T. Spiga '13 ............................................. 30
Kathleen A. Sprague '13 .......................................... 28
Jaya A. Stenquist '13 ................................................. 32
Samantha M. Stephens '14 ...................................... 31
Jeff Stout '14 (Babson) .............................................. 29
Ye-Eun Sung '16 ..................................................... 50
Sharon Tai '13 ........................................................ 50
Andrea A. Takahesa Tabori '13 ................................. 38
Lindsay L. Tang '15 ................................................... 24
Katrina A. Tarmidi '13 .............................................. 34
Cassandra Tavolarelli '13 ......................................... 20
Kelsey L. Tempel '13 ............................................... 34

Madeline M. Thayer '15 .......................................... 31
Carla The '15 ........................................................ 54
Elizabeth Torres '14 ................................................. 47
Sarah G. Trager '13 ................................................. 54
Audrey A. Tran '15 .................................................. 22
Katherine D. Tran '15 .............................................. 22
Quyen Than Trong '16 .............................................. 50
Yesenia Trujillo '14 .................................................. 39
Vikki Tse '15 .......................................................... 54
Megan N. Turchi '13 ................................................. 37
Blair L. Uhlig '14 ..................................................... 28
Sarah E. Vaughn '15 .................................................. 48
Slater Victoroff '15 (Olin) ........................................ 22
Carla M. Villarreal '13 .............................................. 44
Ilana Z. Walder-Bleusz '13 (Olin) .............................. 25
Annie Wang '14 ....................................................... 31
Penny Wang '14 ....................................................... 44
You Wang '13 ........................................................ 39
Jenna M. Watson '13 ................................................. 34
Abigail R. Weitman '13 ............................................ 47
Anne V. West '15 ..................................................... 41
Wendy W. West '13 ................................................... 47
Eugenia C. White '13 ................................................. 44
Alyssa G. Wibisono '13 .......................................... 43, 50
Amy N. Wickett '16 .................................................. 39
Marilynn M. Willey '14 .......................................... 54
Amelia S. Williams '13 .............................................. 20
Anne M. Williams '13 .............................................. 41
Megan S. Wilson '13 ............................................... 58
Teresa K. Wisner '13 ................................................. 52
Christianne L. Wolfsen '13 ....................................... 20
Kiley A. Wong '16 .................................................... 31
Audrey M. Wozniak '14 .......................................... 28, 26
Jiezhun Wu '13 ....................................................... 42
Ji Qing Wu '15 ........................................................ 20
Xue Wu '13 ........................................................... 39
Yue Xing '13 .......................................................... 34
Wendy M. Xu '13 ..................................................... 34
Claudina X. Yang '14 ................................................. 40
Hye Soo Yang '13 ..................................................... 42
Elizabeth A. Yang '13 ................................................. 49
Erin M. Yeagle '13 .................................................... 27
Shuang Yin '16 ....................................................... 39
Paula K. Yost '13 ..................................................... 53
Sarah K. Zemlok '14 ............................................... 45
Mariana Zepeda '14 ................................................. 30
Hong Zhang '15 ....................................................... 21
Siyi Zhang '15 ........................................................ 42
Xueyun Zhang '16 .................................................... 54
Ya Yun Zhang '13 ..................................................... 31
Ying Yi Zhang '13 ..................................................... 28
Grace D. Zhao '15 .................................................... 24
Amy Zhou '14 ........................................................ 44
Yu Zhou '16 ........................................................... 25

56 WELLESLEY COLLEGE RUHLMAN CONFERENCE 2013

STUDENT INDEX (BY CLASS)

2013

Jane E. Adkins '13 ................................................... 23, 31
Akofa A. Ahiabie '13 ................................................. 41
Sara E. Althari '13 ................................................... 32
Raissa D. Antwi '13 .................................................. 28
Kerrin M. Arnold '13 ................................................. 36
Elizabeth M. Bachelder '13 ....................................... 31

Bridget E. Begg '13 .................................................. 49
Natalie E. Benjamin '13 ............................................ 53
Haley E. Bertram '13 ................................................. 49
Eliana R. Blaine '13 .................................................. 37, 51
Emma M. Brittain '13 ................................................. 28
Clara S. Brodie '13 .................................................... 30

Elizabeth A. Brown '13 ............................................. 45
Maria E. Bustillo '13 ................................................. 44
Kimberly S. Cabral '13 .............................................. 36
Katherine W. Cali '13 ................................................. 46
Danielle A. Callendar '13 ........................................... 52
Leila Chaib '13 ......................................................... 36
<table>
<thead>
<tr>
<th>Name</th>
<th>Class Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaitlin S. Bohon '14</td>
<td></td>
</tr>
<tr>
<td>Mavis D. Boamah '14</td>
<td></td>
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<td>Jacquelyn E. Blum  '14</td>
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<td>Andrea J. Bae '14</td>
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<td>Michelle H. Cho '13</td>
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<td>Mariya I. Chokova '13</td>
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<td>Karina K. Chung '13</td>
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<td>Lucy V. Cleland '13</td>
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<td>Arielle A. Concilio '13</td>
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<td>April M. Crehan '13</td>
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<td>Molly R. Cyr '13</td>
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<td>Yi Ling Dai '13</td>
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<td>Rachel S. Davis '13</td>
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<td>Isabella C. DeFries '13</td>
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<td>Aryanne D. de Silva '13</td>
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<td>Blake Desorbeaux '13</td>
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<td>Caroline P. Dodge '13</td>
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<td>Zihan Dong '13</td>
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<td>Tenzi Y. Dongchung '13</td>
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<td>Katherine E. Dresnader '13</td>
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<td>Laura M. Dulude '13</td>
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<td>Margaret E. Dunn '13</td>
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<td>Isabelle R. Erb '13</td>
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<td>Emily Erdman '13</td>
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<td>Danielle R. Ezor '13</td>
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<td>Zain Fanek '13</td>
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<td>Taili Feng '13</td>
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<td>Maria Cristina Fernandes '13</td>
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<td>Ana L. Medrano Fernandez '13</td>
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<td>Michelle N. Ferreirae '13</td>
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<tr>
<td>Maia G. Fitzstevens '13</td>
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<td>Jennifer E. Fishbein '13</td>
<td></td>
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<tr>
<td>Silvia M. Galis-Menendez '13</td>
<td></td>
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<tr>
<td>Carly L. Gayle '13</td>
<td></td>
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<tr>
<td>Lynn M. Geiger '13</td>
<td></td>
</tr>
<tr>
<td>Isabelle Gell-Levey '13</td>
<td></td>
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<tr>
<td>Kathryn C. Goffin '13</td>
<td></td>
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<tr>
<td>Hilary J. Gross '13</td>
<td></td>
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<tr>
<td>Catherine Guo '13</td>
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<tr>
<td>Priscilla D. Gutierrez '13</td>
<td></td>
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<tr>
<td>Catherine J. Ha '13</td>
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<tr>
<td>Jawon Hahn '13</td>
<td></td>
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<tr>
<td>Camille E. Hamilton '13</td>
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<tr>
<td>Katharine M. Hargreaves '13</td>
<td></td>
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<tr>
<td>Meredith G. Healy '13</td>
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<tr>
<td>Diego Hernandez '13 (Babson)</td>
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58
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