

WELLESLEY COLLEGE

THE

RUHLMAN

RUHLMAN

RUHLMAN

CONFERENCE

A CELEBRATION OF
STUDENT ACHIEVEMENT

APRIL 29, 2015



THE RUHLMAN CONFERENCE 2015

It gives us great pleasure to welcome you to the Iman 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 300 Wellesley students, the Iman 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 2014-15 Program Committee for the Ruhlman Conference

Laura Adamczyk
Parent & Family Programs

Mwangala Akamandisa
Class of 2015

Megan Brooks
Research & Instructional Support

Pauline Carpenter
Resources

Jenny Chen
Class of 2016

Susan Cohen
Office of the Class Deans

Kristen Gallagher
*Office of the Provost and Dean of
the College*

Scott Gunther
French

Megan Nuñez
Chemistry

Jenny Johnson
Music

Jennie Pyers
Psychology

Orit Shaer
Computer Science

Mingwei Song
East Asian Languages & Cultures

Beccah Sparkes
*Office of the Provost and Dean of
the College*

A History of the Conference

By Lee Cuba and
Adele Wolfson

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. k 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.

Special thanks to:

The Wellesley College Guild of Carillonners, a student-run organization whose members provide the trademark music of chiming bells on campus. Active members of the Guild receive weekly lessons and perform regularly on the carillon during the school year. The Guild also hosts open tower events and concerts open to the entire Wellesley community.

Housing 32 bells, the Wellesley carillon was installed in Galen Stone Tower above Green Hall in 1931. The tower is 182 feet tall from the ground to its highest finial. Aside from a few years during World War II, Wellesley students have performed on the carillon since its installation.

Featured carillonners playing during today's Ruhlman Conference:

Emma Ambrogi '16, Isabelle Chen '17, Alison Draikiwicz '18, Helena Yan '18

Concert schedule:

- 9:10-9:30: *Emma Ambrogi*
Prayer, from Five Short Pieces; Leen t'Hart
Aeolian Mode, from Seven Modal Pieces; John Courter
Chopinesque Prelude, from The Wellesley Studies; Geert D'hollander
Four Easy Pieces; Diabelli arr. Barnes
 Siciliana
 Andante
If Ye Love Me; Tallis arr. Ambrogi
Old 100th; Bourgeois arr. Price
- 10:40-11am: *Alison Draikiwicz*
Soliloquy; Sor arr. Buchanan
Litany; Schubert arr. t'Hart
Consolation; Mendelssohn arr. Corbett
Sal Tlay Ka Siti, from the Book of Mormon; Parker, Stone & Lopez arr.
Draikiwicz
When You Wish Upon a Star
- 12:40-1pm: *Helena Yan*
For the Beauty of the Earth
Sonatina for Guitar; Gragnani arr. Buchanan
 Moderato
 Andante
Wiebenliedchen; Schumann arr. Vitu
Arabesque #2; Debussy arr. Yan
Toccatà alla Tromba; Willem de Neminis
- 2:40-3pm: *Isabelle Chen*
Belmont Suite; John Knox
 Prelude
 Slow Jig
 Final Flourish
In Memoriam; John Courter
Dancing Queen; Abba arr. Chen
Fishers' Hornpipe; trad. arr. Price

Wellesley in Translation (WIT), a student group whose mission is to allow bi/multilingual students to utilize and further develop their language skills, while promoting cultural exchange through translation. At today's conference, a group of WIT students will present poems during a special event called "Is Love Translatable? Translation and Interpretation of Love Poems From Different Cultures." This event will be held at 1:30 in Jewett Arts Center 450.

Conference at a Glance

| Themes | 9:30–10:40am | 11am–12:10pm | Lunch* |
|-------------------------------|---|--|--------|
| Humanities | <p>Ruins, Fragments, and Painting in Dialogue with Technology (Exhibition) JAC-Gallery</p> <p>The Space beyond Painting Canvas (Exhibition) JAC-Gallery</p> <p>Mozart III and the Ginkgo Tree: A Talk on Campus Sculpture and Tree (On Location Presentation) On Location</p> <p>Voices in Literature and Medicine: In Medias Res (Panel Discussion) SCI 396</p> <p>To the South! A Study of Exoticism in Fanny Hensel's Lieder (Short Performance) JAC Auditorium</p> <p>Avocoder: An Interface for Tangible Voice Manipulation (Exhibition) SCI 270</p> | <p>Euler: An Interactive Sound Installation (Exhibition) SCI 277</p> <p>The Short Film, From Theory to Production (Panel Discussion) SCI 274</p> <p>Transforming Space (Short Talks) SCI 270</p> | |
| Science and Technology | <p>Demystifying Science through the Power of Art (Panel Discussion) FND 126</p> <p>A Molecular Approach to Disease and Disorder (Short Talks) PNW 117</p> <p>Empowering Online Learners (Short Talks) PNE 139</p> | <p>Investigating the Mechanism of Direct Protein-protein Interaction between the Cardiac Potassium Ion Channel Proteins HERG and KvLQT1 (Panel Discussion) FND 126</p> <p>The Invasive Potential of <i>Bromus tectorum</i> in Cape Cod Dune Ecosystems (Panel Discussion) Collins Cinema</p> <p>The Relationship between the Innate Immune System and Adult Neurogenesis in the Crayfish, <i>Procambarus clarkii</i> (Panel Discussion) JAC 450</p> <p>America's Next Top Element (Short Talks) PNE 139</p> <p>Illuminating the Small (Short Talks)PNW 116</p> <p>Exploring Playthings: Piloting a New Toy (Interactive Teaching Presentation) FND 120</p> | |
| Social Sciences | <p>Calderwood Seminars in Public Writing: Engaging Interviews PNE 239</p> <p>Language Use and Change in Globalizing Korea: Nationalism, Diversity, Sexuality, and Pop-Culture (Panel Discussion) PNW 116</p> <p>Perspectives from the Freedom Project I: Research on Freedom of Speech (Panel Discussion) JAC 450</p> <p>Revolution, Occupation, & Intervention (Short Talks) PNW 212</p> <p>Clap Along If You Feel... (Short Talks) PNE 339</p> <p>Whispers to Shouts (Short Talks) SCI 278</p> | <p>Perspectives from The Freedom Project III: Race, Identity, and Freedom (Panel Discussion) SCI 104</p> <p>Puzzles in International Security: Producing Political Science Honors Theses (Panel Discussion) SCI 278</p> <p>Finding Political and National Identities (Short Talks) PNE 239</p> <p>I'm Only Human: Childhood and Beyond (Short Talks) PNW 212</p> <p>Mind Matters (Short Talks) PNE 339</p> <p>Sleep, Study, Tweet @ Wellesley (Short Talks) SCI 396</p> <p>Sparking Change (Short Talks) PNW 117</p> | |

key: **FND**—Founders Hall
JAC—Jewett Arts Center
PNE—Pendleton East
PNW—Pendleton West
SCI—Science Center

| 1:30–2:40pm | 3–4:10pm | 4:30–5:40pm |
|--|---|---|
| <p>Studies, in Various Media, of the Human Skeleton (Exhibition) JAC-Gallery</p> <p>Kino: A Hitchcockian Short Film (Film Screening) Collins Cinema</p> <p>The music that survived the fire: A historical examination of Brahms' Piano Trio No. 1 (Long Performance) Jewett Auditorium</p> <p>Is Love Translatable? Translation and Interpretation of Love Poems From Different Cultures (Panel Discussion) JAC 450</p> <p>Reflections on Race and Gender in Contemporary Art (Panel Discussion) PNW 212</p> <p>Poster Session SCI Focus</p> | <p>Peanut-Butter-Jelly Days (Exhibition) JAC-Gallery</p> <p>Enter Stage Right...Carefully Please! (Long Performance) Ruth Nagel Jones Theatre</p> <p>Hear Me Moan: Speak-Out on Sexual Pleasure and Desire (Panel Discussion) SCI 396</p> <p>Wintersession in Kyoto: An On-Site Study of Japanese Religion and Culture (Panel Discussion) SCI 274</p> <p>Contested Memories of War and Violence (Short Talks) SCI 278</p> <p>Fictions & Realities (Short Talks) PNW 212</p> <p>Regional Diversity & Struggles for Power (Short Talks) PNE 139</p> | <p>The Bicyclist and Other Stories: Adapting the Narratives and Interfaces of Comics and Graphic Novels for the Web (Exhibition) JAC-Gallery</p> <p>Scenes from the Bard: The Wellesley College Shakespeare Society Presents The Tempest and Hamlet (Interactive Teaching Presentation) Ruth Nagel Jones Theatre</p> <p>Self-Producing an Album of Unintended Soliloquies: A Pamela Daniels Fellow Project (Long Performance) Jewett Auditorium</p> <p>A Closer Look at Anne Whitney, her Sculpture, and Nineteenth-Century Scholarship (On Location Presentation) Davis Museum</p> <p>Cultural Memory on the Global Stage: Mapping Ties to Eastern Europe in the Work of Latin American writers (Panel Discussion) SCI 396</p> |
| <p>The Encompassing Spectrum of Biological Chemistry Thesis Research (Panel Discussion) SCI 277</p> <p>Poster Session SCI Focus</p> <p>What Powers Powerful Women: The Future of Energy at Wellesley College (Panel Discussion) SCI 274</p> | <p>Probing the Microbial Universe In and Around Us (Panel Discussion) Collins Cinema</p> <p>Small Particles with Big Impact: Innovations in Nanotechnology (Panel Discussion) PNE 339</p> <p>Out of this World (Short Talks) PNW 117</p> <p>Touching the Invisible: Novel Human Computer Interactions (Short Talks) SCI E125</p> <p>Designing Ecosystems (Panel Discussion) FND 126</p> | <p>From Birds to Nanoparticles: MR Studies at Wellesley (Panel Discussion) FND 120</p> <p>Investigating Structures and Functions of Histone-Derived Antimicrobial Peptides (Panel Discussion) PNE 339</p> <p>Earth, Wind, & Drinking Water (Short Talks) PNW 117</p> <p>Navigating the Tree of Life (Short Talks) PNE 239</p> <p>Protecting our Privacy (Short Talks) PNW 212</p> |
| <p>The Current Status of Afghan Refugees in New Delhi: Afghan Refugees Stuck in the Liminal Phase (On Location Presentation) SCI 278</p> <p>Perspectives from The Freedom Project IV: Rights and Freedom in the United States (Panel Discussion) SCI 104</p> <p>Engineering for Humanity: Helping Elders Age in Place through Partnerships for Healthy Living (Panel Discussion) PNE 339</p> <p>Learning by Giving (Panel Discussion) FND 126</p> <p>Projects and Lessons from Paradigms, Predictions, and Joules (PPJ), an experimental Olin/Wellesley Transdisciplinary course (Panel Discussion) PNW 117</p> <p>REPRODUCTION: Rethinking Families through Gamete Use, The Internet and Legal Challenges (Panel Discussion) SCI 396</p> <p>Asia Rising (Short Talks) PNE 239</p> <p>Health, Benefits, & Access (Short Talks) PNE 139</p> <p>Interdisciplinary Approaches to Public Health (Short Talks) PNW 116</p> <p>Poster Session SCI Focus</p> <p>Culture and Science of Blood (Panel Discussion) SCI 270</p> | <p>Do Tariffs Help or Harm? A Look Into American Trade Policy (Panel Discussion) FND 120</p> <p>Mellon Mays Research Imperatives II (Panel Discussion) JAC 450</p> <p>Perspectives from The Freedom Project V: Development and Freedom (Panel Discussion) SCI 104</p> <p>Bridging the Gap (Short Talks) PNE 239</p> <p>Politics of Sexuality (Panel Discussion) PNW 116</p> | <p>Global Social Protection in Latin America: Exploring Health Care Options for People on the Move (Panel Discussion) FND 126</p> <p>Mellon Mays Research Imperatives I (Panel Discussion) JAC 450</p> <p>Perspectives from The Freedom Project II: The Regulation of Sexual Behavior (Panel Discussion) SCI 277</p> <p>Transnational Feminism (Panel Discussion) SCI 270</p> <p>A Flight of Research at Wellesley (Short Talks) PNW 116</p> |

**All members of the Wellesley College community are invited to enjoy lunch on the Wang Campus Center lawn. In the event of inclement weather, the lunch will remain in the same tented service location with the Campus Center and Alumnae Hall as indoor rain locations. Light lunchtime entertainment is provided by The Blue Notes, The Tupelos, and the Wellesley Widows, in the vicinity of the lunch tent.*

**key: FND—Founders Hall
JAC—Jewett Arts Center
PNE—Pendleton East
PNW—Pendleton West
SCI—Science Center**

Conference Schedule

8:30–9:30am *Continental breakfast served in Pendleton Atrium
and Science Center Sage Lounge.*

9:30-10:40am **Ruins, Fragments, and Painting in Dialogue with Technology (Exhibition) JAC-Gallery**
Humanities *Catherine S. Harlow*

The Space beyond Painting Canvas (Exhibition) JAC-Gallery
Zhixing Fei

Mozart III and the Ginkgo Tree: A Talk on Campus Sculpture and Tree (On Location Presentation) On Location
Xiaorong Liu, Margaret M. McClure, Sarah J. Russell, Ningyi Xi, Charlotte Z. Yu

Voices in Literature and Medicine: In Medias Res (Panel Discussion) Science Center 396
Tiffany Chen, Sophia H. Gibert, Liana J. Goebbring
To the South! A Study of Exoticism in Fanny Hensel's Lieder (Short Performance)
Xi Zhang

Avocoder: An Interface for Tangible Voice Manipulation (Exhibition) Science Center 270
Galen T. Chuang, Sravanti Tekumalla

Science & Technology **Demystifying Science through the Power of Art (Panel Discussion) Founders Hall 126**
Cassandra M. Allen, Elizabeth A. Argy, Lilly M. Gorman, Fiordaliz Guerrero, Chayroold S. Guevara, Franziska S. Hofmann, Ji Hyun Lee, Hannah R. Levine, Samantha F. Marrus, Akanksha M. Mehta, Zoe Peeler, Naima Pittman, Sanjana Puri, Alexandra Spiliakos, Claire Whitman

A Molecular Approach to Disease and Disorder (Short Talks) Pendleton Hall West 117

Investigating the Role of Gene Regulation in Autism Spectrum Disorders
Suhayla Islam

The Preparation of Novel Chalcone and Pyrazoline Derivatives Demonstrating Anti-tubercular Activity
Lynn U. Hsu

Addition of Chemotherapy to the Anti-Angiogenic Treatment of Glioblastoma Multiforme
Veronica G. Yu

Spiroxin A Derivatives as Potential Anti-pancreatic Cancer Agents
Hong Zhang

Empowering Online Learners (Short Talks) Pendleton Hall East 139

The Visible and Invisible in a MOOC Discussion Forum
Jessica J. Bu

Extending List Operators in App Inventor
Soojin Kim

Folders, a Visual Organizational Tool for MIT App Inventor
Xixi Lu

Social Sciences **Calderwood Seminars in Public Writing: Engaging Interviews (Panel Discussion) Pendleton Hall East 239**
Delia Maria Arias De Leon, Tiffany K. Chan, Abigail L. Golden, Alexis Zhang

Language Use and Change in Globalizing Korea: Nationalism, Diversity, Sexuality, and Pop-Culture (Panel Discussion) Pendleton Hall West 116

Athena M. Kihara, Katherine P. Rusin, Kathryn J. Saibara, Isabel Yu

Perspectives from the Freedom Project I: Research on Freedom of Speech (Panel Discussion) Jewett Arts Center 450

Anonymity, Pseudonymity, and Free Speech Online

Grace J. Hu, Ye Eun Jeong, Avanti S. Prasanna

Are Political Donations Free Speech? The Case of Citizens United v. FEC

Audrey H. Elkus, Jessica Shin

Revolution, Occupation, & Intervention (Short Talks) Pendleton Hall West 212

Freedom or Failure? An Arendtian Analysis of the Egyptian Revolution of 2011

Elizabeth Y. Kapnick

Should We Continue to Engage in Humanitarian Intervention?: Evaluating Libya, Four Years Later

Michelle F. Namkoong

Filling Political Spaces: Iraqi NGOs in the Context of American Military Occupation

Jillian N. Seymour

'Defector' as Socio-Lexical Labeling: A corpus-based Discourse Analysis of North Korean Defector Narratives in South Korea

Claire Yi

Clap Along If You Feel... (Short Talks) Pendleton Hall East 339

The Correlation between Introversion-Extraversion and Measures of Happiness

Courtney A. Brown

Belonging in a College Community: Authenticity, Perceptions of Socioeconomic Status, and Well-being

Stephanie C. Eby, Alyssa M. Jang, Katherine H. Levine

Implications of Adolescent Narcissism for Functioning in Later Adulthood

Haruka Notsu

Empowerment vs. Threat: How Aspects of Identity Affect Performance on Stereotyped Tasks

Lauren T. Westendorf

Whispers to Shouts (Short Talks) Science Center 278

Combating the Patriarchy and Ethnocentrism in Tanzania: Where Do Women and Feminism Fit In?

Kayla E. Bercu

Si Se Puede: Unheard Voices of Latina Women In Kern County

Sophia M. Garcia

Military Perception of "Don't Ask, Don't Tell"

Melodie V. Ha, Rose A. Owen

10:40–11am Break

Continental breakfast served in Pendleton Atrium and Science Center Focus.

**11am–12:10pm
Humanities**

Euler: An Interactive Sound Installation (Exhibition) Science Center 277

Ariana N. Mora

The Short Film, From Theory to Production (Panel Discussion) Science Center 274

Ayana K. Aaron, Katharine A. Barsotti, Adrienne A. Ogle, Gladys Raygoza, Elizabeth S. Tyson, Abra G. White

Transforming Space (Short Talks) Science Center 270

Art Deco and the Sartorial City

Tiffany K. Chan

Translation: Body, Movement, and Space

Isabella C. Frontado

The Graduate Center: Gropius and Bauhaus Ideology in the Crimson Context

Jocelyn S. Wong

Science & Technology

Investigating the Mechanism of Direct Protein-Protein Interaction between the Cardiac Potassium Ion Channel Proteins HERG and KvLQT1 (Panel Discussion) Founders Hall 126

Estelle Kim, Yeon Joo Lee, Medeea C. Popescu

The Invasive Potential of *Bromus tectorum* in Cape Cod Dune Ecosystems (Panel Discussion) Collins Cinema

Abigail L. Golden, Shivani Kuckreja, Kathy Long

The Relationship between the Innate Immune System and Adult Neurogenesis in the Crayfish, *Procambarus clarkii* (Panel Discussion) Jewett Arts Center 450

Kara M. Banson, Zena K. Chatila, Emily L. Cockey, Jingjing Li, Jody F. Platto

America's Next Top Element (Short Talks) Pendleton Hall East 139

Optically Detected Magnetic Resonance of Nitrogen-Vacancy Centers

Carina A. Belvin

A Coupled Schrodinger Equation Approach to Modeling Predissociation in Sulfur and Carbon Monoxides

Kathryn E. Ledbetter

Design and Construction of an Autocorrelation Device to Identify Single Nitrogen Vacancy Centers in Diamond

Eunice Y. Paik

Illuminating the Small (Short Talks) Pendleton Hall West 116

The Role of Copper in the Oxidative Stress Response of *Chlamydomonas reinhardtii* to Heat Shock

Michelle R. Brann

Effect of the Spiroiminodihydantoin (Sp) Lesion on Nucleosome Stability

Liana J. Goehring

Quantitative Investigations of Ammonia Radiolysis

Nathalie Rivas, Katherine D. Tran

Structural Determinants of Promiscuous and Specific Binding in Protein: Protein Complexes Using Component Analysis Techniques

Aiman Sherani

Exploring Playthings: Piloting a New Toy (Interactive Teaching Presentation) Founders Hall 120

Katherine E. LeVine

Social Sciences Perspectives from The Freedom Project III: Race, Identity, and Freedom (Panel Discussion) Science Center 104

Sydney A. Stewart, Ningyi Xi, Tina Y. Xu

Puzzles in International Security: Producing Political Science Honors Theses (Panel Discussion) Science Center 278

Kendall L. Bianchi, Wenyan Deng, Lavanya Ganesh, Claire J. Tam

Finding Political and National Identities (Short Talks) Pendleton Hall East 239

Satisfaction, Skepticism, or Succession?: Evaluating Euroscepticism Through Study of Denmark and the United Kingdom

Oset Babur

Optimal ECB Policy: Lessons from Stress in EMU Member Countries

Angela Y. Gu

Prosjekt Nytt Nasjonalmuseum: Negotiating a Norwegian Identity

Diana T. Huynh

Mind the Gap: Exploring the Ideological Differences Between Tea Partiers and Republicans

Zoe R. Magid, Elena R. Scott-Kakures

I'm Only Human: Childhood and Beyond (Short Talks) Pendleton Hall West 212

Frustration & Motivation: How Frustration Impacts Persistence, Ratings of Enjoyability and Interest, and Students' Willingness to Do It All Over Again

Kelsey A. Brown

Understanding the Relationship between Injured Female Dancers, Alternatives to Dance Participation, and Self-Esteem and Body Image

Sarah Hitchner

Relationship of Impulsivity and The Menstrual Cycle to Attitudes Towards Spending, Debt, and Shopping

Molly E. McNamara

Preschool Friendship Formation and Unilateral Friendship Outcomes

Maile M. Wong

Mind Matters (Short Talks) Pendleton Hall East 339

Everyone Likes a Copycat

Heather L. Kosakowski

The Impact of Executive Functioning on Speech Production in Monolinguals and Bilinguals

Jeanne Gallee

Why Guys Think They're Funny: A Sociolinguistic Perspective on the Gender Divide in Humor

Christina G. Rozek

Watching TV during Reading Period: A Do or a Don't

Syeda M. Mabub

Sleep, Study, Tweet @ Wellesley (Short Talks) Science Center 396

Digital Ethnography, Wendy Wellesley, and #WellesleyCollegeProbz

Claire A. Cerda

The Wellesley College Housing Lottery: Version 2.0

Emily D. Cetlin, Han-Ching E. Hau

We Were Only First-Years: Understanding the Successes and Failures of Shadow Grading at Wellesley College

Rebecca A. Hosey

Sparkling Change (Short Talks) Pendleton Hall West 117

Contextualizing Student Activism for Palestine

Nour Azzouz, Eliza W. Marks

A New Era for Research: How the Internet and Grassroots Social Movements Shape Space Policy and the Research Cycle

Hannah E. Harris

Looking Like Me on TV; How Mainstream Racial Representation Impacts Civic Engagement

Jalena A. Keane-Lee

Charging Up Battery Recycling: Does Legislation Produce Net Environmental Benefits?

Leah M. Nugent

**12:10–1:30pm
Break**

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

**1:30-2:40pm
Humanities**

Studies, in Various Media, of the Human Skeleton (Exhibition) JAC-Gallery

Hanna G. Day-Tenerowicz, Grace Q. Fang, Zhixing Fei, Nadine C. Franklin, Christine J. Galloway, Marissa R. Klee-Peregon, Juyon Lee, Emily A. Moore, Madison A. Morgensai, Ci Qu

Kino: A Hitchcockian Short Film (Film Screening) Collins Cinema

Elizabeth S. Tyson

The Music That Survived the Fire: A Historical Examination of Brahms' Piano Trio No. 1 (Long Performance) Jewett Auditorium

Kathleen R. Regovich, Pallas C. Riedler, Shanti E. van Vuuren

Is Love Translatable? Translation and Interpretation of Love Poems From Different Cultures (Panel Discussion) Jewett Arts Center 450

Alyssa Y. Hahn, Xueni Jin, Eunkyung Kim, Momo Wang, Pamela N. Wang, Bo Rim Yoon

Reflections on Race and Gender in Contemporary Art (Panel Discussion) Pendleton Hall West 212

Sabrina A. Giglio, Courtney N. Jackson, Anneliese M. Klein, Zoe Talia M. Schreiber

Poster Session, Science Center Focus

Teaching about Religions in American Public Schools

Christiana T. Joseph

Science & Technology

The Encompassing Spectrum of Biological Chemistry Thesis Research (Panel Discussion) Science Center 277

Sebiba M. Abdullahi, Angela C. Ai, Mwangala P. Akamandisa, Elena N. Cravens, Audrey A. Tran

Poster Session, Science Center Focus

Examining the Impact of Point Mutations L1569H and L1663T on the Stability and the Secondary Structure of the Human Notch 2 Heterodimerization Domain

Stephanie M. Kim, Isabelle M. Schoppa

Sampling Requirements for Long-term Ecological Monitoring of Fish Communities

Melaina A. Wright

Effect of Cell Culture Components on the Preferential Cytotoxicity of Isoprenylated Coumarin Derivatives

Yin Y. Wang, Hong Zhang, Ronghao Zhou

A Systematic Study of the Stress Response Induced by Low pH treatment of Heavily Contaminated Water on Viability and Protein Expression Profiles of E.coli

Olivia K. Gada

From where and so what?: Geographic origin and genetic consequences of a species introduction to the Galapagos archipelago.

Mary K. Dornon, Sara M. Eslami, Anna C. Hakes, Sarah J. Pangburn, An N. Ton

Study of the Structural Composition and Stability of the Critical Interfacial α -Helix in the Negative Regulatory Region of the Notch Receptor

Wendy S. Ma, Anita Wo

Effect of GnRH on Thimet Oligopeptidase within Prostate Cancer Cells

Yesenia Ramirez

What Powers Powerful Women: The Future of Energy at Wellesley College (Panel Discussion)

Catherine E. Baltazar, Rebecca Y. Chen, Katherine A. Corcoran, Sophia M. Garcia, Jibelah O. Greenwald, Shivani Kuckreja, Shuangxou Long, Alisha M. Pegan, Emily A. Scoble

Social Sciences

The Current Status of Afghan Refugees in New Delhi: Afghan refugees stuck in the liminal phase (On Location Presentation) Jewett Auditorium

Jessica F. Saifee

Perspectives from The Freedom Project IV: Rights and Freedom in the United States (Panel Discussion) Science Center 104

Melissa S. Pettit, Audrey H. Elkus, Jessica Shin

Engineering for Humanity: Helping Elders Age in Place through Partnerships for Healthy Living (Panel Discussion) Pendleton Hall East 339

Olivia B. Duggan, Fabiana R. Vivacqua

Learning by Giving (Panel Discussion) Founders Hall 126

Sarah A. Hucklebridge, Yoo Ri Kim, Emma C. Slade-Baxter, Chloe J. Stroman

Projects and lessons from Paradigms, Predictions, and Joules (PPJ), an experimental Olin/Wellesley Transdisciplinary course (Panel Discussion) Pendleton Hall West 117

Julia A. O'Donnell

REPRODUCTION: Rethinking Families through Gamete Use, The Internet and Legal Challenges (Panel Discussion) Science Center 396

Serene A. Beltran, Nicole L. Blansett, Jacqueline G. McGrath, Jordan L. Parker

Asia Rising (Short Talks) Pendleton Hall East 239

Trade, Poverty and Inequality: Evidence from the End of the Multifiber Arrangement in India

Narayani Gupta

Businesses as Development Agencies: Modern Economic Development in East Asia

Nicole H. Kang

The Asia Society: A Window for Understanding Changing Geopolitics and Cultural Diplomacy
Rebecca E. Selch

Health, Benefits, & Access (Short Talks) Pendleton Hall East 139

The Growth in the VA's Disability Compensation Program: The Role of Health
Isabella J. Dougherty

Hold the Sirens: The Economics of Overstated Inefficiency in Emergency Departments
Iris W. Lin, Marika A. Psychojos

The Effect of Social Security on Elderly Migration and Location Choice
Elaine Tang

Is Democracy the Answer: Differential Outcomes in the Treatment of the Global HIV Epidemic
Kathleen L Zhu

Interdisciplinary Approaches to Public Health (Short Talks) Pendleton Hall West 116

Mental Illness Stigma in South Asian Cultures
Tahani R. Chaudhry

Longitudinal Trends in Children with Severe Early Onset Childhood Obesity
Adrienne E. Lage

Inoculation Strategies for Polio: Modeling the Effects of a Growing Population on Public Health Outcomes
Meredith L. McCormack-Mager

Fighting Sexual Violence in Online Communities: New Advocacy for New Media
Sabirya C. Raja

Poster Session, Science Center Focus

Stereotypes about Women of Different Sexual Orientations
Simone N. Liano, Hyun Jin Sohn

Transgender Age of Awareness and Mental Health
Elijah L. Cohen

Culture and Science of Blood (Panel Discussion) Science Center 270
Nicole E. Anderson, Yelim Lee, Farida M. Virani, Helena Z. Yan

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

3:00-4:10 Humanities **Peanut-Butter-Jelly Days (Exhibition) JAC-Gallery**
Mary E. Kery

Enter Stage Right...Carefully Please! (Long Performance) Ruth Nagel Jones Theatre
Kendra Cui, Mara Elissa Palma

Hear Me Moan: Speak-Out on Sexual Pleasure and Desire (Panel Discussion) Science Center 396
Hannah F. Brewster, Lia P. Camargo, Gabriela S. Cooper-Vespa, Alexandria M. Faura, Ogochukwu I. Okoye, Arianna Rodriguez, Brigitte C. Roper, Olivia M. Salas, Sophia R. Temkin, Erin C. Yang

Wintersession in Kyoto: An On-Site Study of Japanese Religion and Culture (Panel Discussion)
Science Center 274

Arlevea M. Freeman, Erin J. Hinesley, Jessica Laughlin, Alison Z. Nikyar, Claire S. Shin

Contested Memories of War and Violence (Short Talks) Science Center 278

The Harsh Realities of Liberation: Memory of War and Occupation in the Baltic States

Abigail E. Stoltzfus

The Red and the Yellow Star: Soviet-Jewish Memory of the Second World War

Luisa von Richthofen

The Maiden's Betrayal: Difficulties in Translation

Katherine P. Jordan

Fictions & Realities (Short Talks) Pendleton Hall West 212

Two Wellesleys through The Eyes of Katharine Lee Bates

Claire I. Milldrum

Alice in Wonderland: Dorothy Wordsworth and the Search for Self in Wordsworthian Nature

Maymay Liu

Looking through Death's veil: Keats, Mortality, and Medicine

Sarah L. Garvey

La Mere Colonisatrice, La Mere Colonise (Mother Colonizer, Mother Colonized): Writing the Mother in Three Autobiographical Novels of Marguerite Duras

Anne S. Ratnoff

Regional Diversity & Struggles for Power (Short Talks) Pendleton Hall East 139

The She-Wolf: Margaret of Anjou, Power, and Leadership

Seraphina E. Oney

Nation and Nonsense: Shakespeare's Treatment of the Welsh

Morgan E. Moore

Catalanismo: Elements of the Catalan Independence Movement

Emily E. Schultz

Unraveling the Contexts of Haruki Murakami

Sophia Vale, Jessica Yung

Science & Technology

Probing the Microbial Universe In and Around Us (Panel Discussion) Collins Cinema

Elizabeth M. Exton, Manjot K. Nagyal, Amelia R. McClure, Michaella F. Montana, Serry Park, Alexa Rodriguez, Rebecca J. Rubinstein, Amelia R. Winter

Small Particles with Big Impact: Innovations in Nanotechnology (Panel Discussion) Pendleton Hall East 339

Amal W. Cheema, Sara N. Musetti, Jeanne J. Xu

Out of this World (Short Talks) Pendleton Hall West 117

Planet Hunting in the Milky Way

Camille C. Samulski

A Family Divided: A Search for Fast-Rotating Prograde Koronis Family Asteroids

Arden C. Radford

Compact Quiescent Galaxies in the DEEP2 Redshift Survey

Kirsten N. Blancato

Let's Put a Positive Spin on Things: Spin Vector and Model Shape Solution Analysis of the Asteroid (1742) Schaifers

Anna V. Payne

Touching the Invisible: Novel Human Computer Interactions (Short Talks) Science Center E125

The 21st Century Toy Box: Understanding the Learning Potential of Technology Toys

Veronica J. Lin

To see the invisible: Application of Google Glass at the Davis Museum

Yi Tong, Ruxin Xu

An In-Depth Look at the Benefits of Immersion Cues on Spatial 3D Problem Solving

Jasmine N. Davis, Cassandra L. Hoef

Breaking Down Communication Barriers with Visualizations

Joanna A. Bi, Sheridan R. Sunier

Designing Ecosystems (Panel Discussion) Founders Hall 126

Maria A. Acosta, Sanam B. Anwar, Carlyne M. Banks, Charlotte H. Benishbek, Ilhan A. Esse, Alda S. Ngo, Alison E. Patterson, Geralle N. Powell, Amanda C. Ruiz

Social Sciences

Do Tariffs Help or Harm? A Look Into American Trade Policy (Panel Discussion) Founders Hall 120

Michelle D. Ahn, Kaitlyn A. Brady, Maria M. Castano, Young-Eun Y. Choi, Clio B. Flikkema, Jihelah Greenwald

Mellon Mays Research Imperatives II (Panel Discussion) Jewett Arts Center 450

Fiona J. Almeida, Rachel P. Arrey, Nicole L. Blansett, Diana Lee

Perspectives from The Freedom Project V: Development and Freedom (Panel Discussion) Science Center 104

So Yeon Jeong, Emma J. King

Bridging the Gap (Short Talks) Pendleton Hall East 239

The United States and Native Americans: Can the Nation-to-Nation Relationship Give Native Youth Equal Education Opportunities?

Abilya H. Chawla

Do the Liberal Arts create a Better Learning Environment for the Sciences? A Longitudinal Study of Engagement of STEM Majors at Liberal Arts Colleges

Alexandra L. Day

Income Inequality, Financial Aid, and the American System of Higher Education

Katherine E. Di Lucido

Politics of Sexuality (Panel Discussion) Pendleton Hall West 116

Nisrine Abdou, Aline W. Mitsuzawa, Budnampet Ramanudom, Sofie M. Werthan

4:10-4:30pm Break

Refreshments and hors d'oeuvres served in Pendleton Atrium and Science Center Focus.

4:30-5:40 Humanities **The Bicyclist and Other Stories: Adapting the Narratives and Interfaces of Comics and Graphic Novels for the Web (Exhibition) Jewett Arts Center Art Gallery**

Julia V. Makivic

Scenes from the Bard: The Wellesley College Shakespeare Society Presents The Tempest and Hamlet (Interactive Teaching Presentation) Ruth Nagel Jones Theatre

Erin A. Nealer, Mara Elissa Palma, Katherine L. Suchyta

Self-Producing an Album of Unintended Soliloquies: A Pamela Daniels Fellow Project (Long Performance) Jewett Auditorium

Audrey A. Tran

A Closer Look at Anne Whitney, her Sculpture, and Nineteenth-Century Scholarship (On Location Presentation) Davis Museum

Kathryn M. Cooperman

Cultural Memory on the Global Stage: Mapping Ties to Eastern Europe in the work of Latin American writers (Panel Discussion) Science Center 396

Victoria I. Angelova, Rebecca A. Hosey, Mayanka H. Kumar, Molly S. Petrey, Nathalie Rivas, Maya C Robles-Wong

Science & Technology **From Birds to Nanoparticles: MR Studies at Wellesley (Panel Discussion) Founders Hall 120**

Tamara Biary, Alexandra M. Dunn, Susan Haney, Zi Wei Liao, Stela P. Petkova, Dana Williams

Investigating Structures and Functions of Histone-Derived Antimicrobial Peptides (Panel Discussion) Pendleton Hall East 339

Dania M. Figueroa, Lauren C. Heller, Maria A. LaBouyer, Sung Hyun Lee, Sukin Sim, Lei Wei, Amy Yuan

Earth, Wind, & Drinking Water (Short Talks) Pendleton Hall West 117

Phosphate and Nitrate Availability Across the Temperate North Atlantic in Correlation with Primary Production

Alison E. Patterson

Addition of Activated Carbon to Sand Filters to Remove Caffeine from Drinking Water

Sarah A. May

Mapping and Geochronology of the Contact Zone of Paleozoic Cape Ann Pluton, Salem Neck, MA

Michaela A. Fendrock

Navigating the Tree of Life (Short Talks) Pendleton Hall East 239

Computational Prediction a Novel Mitochondrial Pathway in *S. cerevisiae*

Alyssa C. Ferris

How Does Food Stress During Early Development Affect the Performance of Adult Honey Bees?

Anne H. Shen

Beyond Prosthetics: The First Steps Towards Identifying Key Regulators of Limb Regeneration

Jacquelyn Chou

Responses to Color and Luminance in Macaque Monkeys and Humans

Monica A. Gates

Protecting our Privacy (Short Talks) Pendleton Hall West 212

Fitbit User Study: Privacy Concerns in Mobile Fitness Technology

Cali E. Stenson

Privacy Implications of New York City's Stop-and-Frisk Data

Veronica L. Manfredi

Cracking the Hackers: an Inside Look at the Effects of Security Leaks

Sonali T. Sastry

Our Bodies, Our [Quantified] Selves

Lia V. Gallitano

Social Sciences **Global Social Protection in Latin America: Exploring Health Care Options for People on the Move (Panel Discussion) Founders Hall 126**

Amy A. Isabelle, Leah R. Kaplan, Denesse Salto

Mellon Mays Research Imperatives I (Panel Discussion) Jewett Arts Center 450

Bernice Y. Chan, Cassandra Flores-Montano, Christiana T. Joseph, Grace Y. Park

Perspectives from The Freedom Project II: The Regulation of Sexual Behavior (Panel Discussion) Science Center 277

The Legalization of Prostitution in Germany: Predictions and Outcomes in Relation to Sex Trafficking

Ianka Bhatia, Ellie D. Neustein

Pedophilia, Social Ostracism, and Mental Health

Michelle Lu, Budnampet Ramanudom

Transnational Feminism (Panel Discussion) Science Center 270

Jacqueline Elise, Elizabeth S. Feldstein, Elizabeth F. Harper, Mariah S. Philips, Leigh D. Pinkston, Alyson B. Randall

A Flight of Research at Wellesley (Short Talks) Pendleton Hall West 116

Treating Closed Angle Glaucoma in Rural China: Engineering a Low-Cost Iridotomy Solution

Duba Aouani, Samantha Chin

First Results of Impacts from Pozo Sacha 480: An Analysis of the Ecological, Social, and Cultural Damage to the Indigenous Community, Loma del Tigre

Catherine E. Baltazar

Menstruation in Judaism

Ariel T. Cohen

Stability and Diversity in a North American Fiddling Tradition

Juliette C. Mann

Conference Planner

| | Presentation 1 | Presentation 2 | Presentation 3 | Presentation 4 |
|--------------|----------------|----------------|----------------|----------------|
| 9:30–10:40am | Topic: | Topic: | Topic: | Topic: |
| | Presenter(s): | Presenter(s): | Presenter(s): | Presenter(s): |
| | Location: | Location: | Location: | Location: |
| 10:40–11am | BREAK | | | |
| 11am–12:10pm | Topic: | Topic: | Topic: | Topic: |
| | Presenter(s): | Presenter(s): | Presenter(s): | Presenter(s): |
| | Location: | Location: | Location: | Location: |
| 12:10–1:30pm | LUNCH | | | |
| 1:30–2:40pm | Topic: | Topic: | Topic: | Topic: |
| | Presenter(s): | Presenter(s): | Presenter(s): | Presenter(s): |
| | Location: | Location: | Location: | Location: |
| 2:40–3pm | BREAK | | | |
| 3–4:10pm | Topic: | Topic: | Topic: | Topic: |
| | Presenter(s): | Presenter(s): | Presenter(s): | Presenter(s): |
| | Location: | Location: | Location: | Location: |
| 4:10–4:30pm | BREAK | | | |
| 4:30–5:40pm | Topic: | Topic: | Topic: | Topic: |
| | Presenter(s): | Presenter(s): | Presenter(s): | Presenter(s): |
| | Location: | Location: | Location: | Location: |

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

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Educational Research and Development Committee

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Keck Northeast Astronomy Consortium Grant

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National Science Foundation

Office of the Provost and Dean of the College

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Robert and Karl Staley Fund

Fund for Summer Research in the Social Sciences

Humanities

Ruins, Fragments, and Painting in Dialogue with Technology (Exhibition)

JAC-Gallery

*Catherine S. Harlow '15, Art Studio and Art History*ADVISOR: *Daniela Rivera, Art*

For my thesis I have created paintings and other artworks that explore the nature and imagery of ruins, fragments, and cracks. Using the leftover fragmented supports from 3D printing to make ruinous landscapes as models for paintings, I wanted to create a dialogue between new technology and older ways of producing art. I have explored these themes and ideas through many media and materials, such as painting, plaster, photography, and video, which all contribute to my understanding and my studio practice. I hope to prompt viewers to engage with my art and the concepts it presents, and to then take away a new perspective that they can apply to the world around them.

The Space beyond Painting Canvas (Exhibition)

JAC-Gallery

*Zhixing Fei '16, Architecture*ADVISOR: *Daniela Rivera, Art*

Painting, traditionally a two-dimensional median, is often built upon the effect of layering. Through layers of paint, the illusion of space can thus be achieved. In this series of fourteen canvases, instead of mounting additional matter to the surface of the canvas, pieces of canvas are carved out to create a hybrid representation of space, where minimal perspective drawings of fourteen rooms once lived by the artist blend with painting and crafting. Reflecting the artist's architectural thinking, each canvas encapsulates memories of space and a life of traveling. Because of the subtracting process, canvas and the stretchers, often neglected as an invisible base covered behind artistic creations, are emphasized as art objects integral to the entire artwork.

The canvases, or objects, float in a "spatially layered" format, symbolizing stratified layers that all together comprise a large, conceptual painting. Meanwhile, due to the three-dimensional nature of the installation, each canvas could also be seen as a structural

component that collectively builds an abstract architecture in the air.

Mozart III and the Ginkgo Tree: A Talk on Campus Sculpture and Tree (On Location Presentation)

On Location

Xiaorong Liu '17, Undeclared, Margaret M. McClure '15, Russian and Political Science, Sarah J. Russell '17, Biological Sciences and Anthropology, Ningyi Xi '17, Art History, Charlotte Z. Yu '17, Architecture
ADVISOR: *Elizabeth Gardner, Davis Museum & Cultural Center*

The campus of Wellesley College is imbued with nature and art, but many fine features go unnoticed as we hustle past them every day. Join the Davis Museum and the Botanistas in learning about Mozart III, the sculpture composite of metal tubes outside the Science Center, and its neighbors, the fan-leafed ginkgo trees, and dive into the rich meaning and beauty of our surroundings.

(This presentation is part of the "Bark and Metal" talk series on campus sculptures and trees, a Friends of Art Student Initiative Program of the Davis Museum in collaboration with Botanistas Tree Mob Series).

Voices in Literature and Medicine: In Medias Res (Panel Discussion)

Science Center 396

Tiffany Chen '15, Spanish, Sophia H. Gibert '16, Philosophy and Individual Major in Biology and Society, Liana J. Goehring '15, French
ADVISOR: *Michele Respaut, rita, French*

In Literature and Medicine, we studied the physical and emotional aspects of illness, patient-doctor relationships, and societal views of medical professions and we were faced with the task of creating a project examining a specific aspect of these broad issues. Although the original purpose of our studies was to expand our understanding of our selected topics, i.e. depression/madness, AIDS (and the parallels to the current Ebola crisis), and music therapy in the context of healing, through research, our projects transformed into records of our journeys documenting how we made peace with these issues. Brought together by the course and by our common experience of personal reconciliation during research, writing, and

introspection, in this panel we will present the knowledge we acquired and the personal experiences that shaped our views.

To the South! A Study of Exoticism in Fanny Hensel's Lieder (Short Performance)

Jewett Arts Center Auditorium

Xi Zhang '15, Music and Biological Chemistry
ADVISOR: *Claire Fontijn, Music*

Fanny Mendelssohn Hensel (1805-46) was a gifted pianist and composer of songs known as Lieder, among other music. Though educated together with her brother Felix Mendelssohn and encouraged to excel, their careers diverged at a certain point such that Mendelssohn pursued a public career as a performer and composer, while Hensel's career was restricted to the domestic sphere. Her deep longing for travel and the exotic was reflected in her music. The two journeys from Berlin during her lifetime, Switzerland and France during her adolescence (1822), then Italy later in life with her husband and child (1839), produced several Lieder that reflected her fascination with places beyond Berlin. In this lecture performance, I will highlight examples in representative Lieder that contain Hensel's sonic depictions of southern lands.

Avocoder: An Interface for Tangible Voice Manipulation (Exhibition)

Science Center 270

Galen T. Chuang '17, Computer Science, Sravanti Tekumalla '16, Computer Science
ADVISOR: *Jenny Johnson, Music*

Avocoder is a musical interface, housed in a green 3D-printed case, created for MUS378: Deconstructive Audio (fall 2014). Our interface allows people to manipulate their voices by tangibly varying pitch, volume and distortion. Modern musical synthesizers come with a myriad of preset patches and filters to manipulate pitch and voice, and this abstraction creates an environment for passive interaction with musical interfaces. Rather than accepting presets, we aim to give people the chance to directly and intuitively manipulate parameters of sound with their hands and voice, allowing them to explore sound beyond the paradigm of rigid systems. We hope that people will take away an experience of playing with digital sound and the sound of their own voice in ways they hadn't before, and that Avocoder

encourages them to challenge predefined constraints of modern musical software and instruments.

Science & Technology

Demystifying Science through the Power of Art (Panel Discussion)

Founders Hall 126

Cassandra M. Allen '18, Undeclared, Elizabeth A. Argy '16, Psychology, Lilly M. Gorman '15, Anthropology, Fiordaliz Guerrero '16, English, Chayroold S. Guevara '15, Art History and Economics, Franziska S. Hofmann '15, Political Science, Ji Hyun Lee '17, Undeclared, Hannah R. Levine '15, Art History, Samantha F. Marrus '16, History and French, Akanksha M. Mehta '16, Economics, Zoe Peeler '17, Chemistry, Naima Pittman '15, English, Sanjana Puri '15, Economics, Alexandra Spiliakos '15, Economics, Claire Whitman, '15, Architecture and Environmental Studies

ADVISOR: *Didem Vardar-Ulu*

Even though curiosity, creativity, and the desire to benefit society lie at the heart of scientific research, scientists are rarely recognized as creative people, who can connect to their communities; that characterization is typically reserved for artists. The goal for the CHEM106 course was to create an opportunity for Wellesley students, regardless of their earlier scientific exposure, to experience how scientists approach real-world problems using the scientific process, and to communicate their understanding to the general public through the power of artistic representation. Please join them for their final project presentations where they will showcase their inherent creativity using multiple forms of art to explain the science behind four topics they have chosen to research and learn about like a scientist: Food emulsions, Chemistry of Mood Enhancers, Pigments, and Acid Rain.

A Molecular Approach to Disease and Disorder (Short Talks)

Pendleton Hall West 117

Investigating the Role of Gene Regulation in Autism Spectrum Disorders

Subayla Islam '15, Neuroscience

ADVISOR: *Deborah Bauer, Neuroscience*

Current literature on autism spectrum disorders points increasingly towards genetic causes on a molecular level. This summer, I had the opportunity to work with associates of the Anderson Laboratory at Beth Israel Deaconess Medical Center and investigate a gene of interest, *UBE3A*. A maternal deletion in a particular region of chromosome 15 results in loss of neuronal *UBE3A*, which results in Angelman Syndrome. However, a duplication and triplication in the same chromosomal region result in two different forms of autism. We studied the role of *UBE3A* in both its regulation and effects on the brain, as well as functionality in response to signaling pathways. Outcomes of these studies might lend support to a better understanding of pathology and potential treatments for autism spectrum disorders.

The Preparation of Novel Chalcone and Pyrazoline Derivatives Demonstrating Anti-tubercular Activity

Lynn U. Hsu '15, Chinese Language & Culture and Chemistry

ADVISOR: *Michael Hearn, Chemistry*

One of the great plagues of antiquity, tuberculosis (TB) today continues as one of the most devastating global diseases. The rise of multiply drug-resistant TB has led to a pressing need for new treatments to help contain the infection. Recently, a significant amount of research in drug design and discovery has focused on the chalcone and pyrazoline families of compounds, both of which have demonstrated strong potential as antitubercular agents. A classical synthesis of a pyrazoline occurs in two steps: 1) a base-catalyzed aldol condensation between an aromatic ketone and an aldehyde to form a chalcone; 2) cyclization of the chalcone with a hydrazine to prepare the pyrazoline. Here, the laboratory preparation and biological testing of several novel chalcone and pyrazoline derivatives is described. The synthesis of these compounds was guided by a pharmacophoric model of antitubercular five-membered ring heterocycles with strong activity.

Addition of Chemotherapy to the Anti-Angiogenic Treatment of Glioblastoma Multiforme

Veronica G. Yu '15, Sociology and Biological Sciences; Edwin L. Steele Laboratory,

Massachusetts General Hospital

ADVISORS: *Jonas Kloepper, MD; Lars Riedemann, MD (Edwin L. Steele Laboratory);*

Stmone Helluy, Biological Sciences (on-campus advisor)

Glioblastoma is the most common primary malignant brain tumor in humans, and it recurs even after trimodal therapy with resection, chemoradiation and adjuvant chemotherapy in almost every case. One school of thought proposes that weakening the blood vessels which supply nutrients to the growing tumor will prevent rogue tumor cells from migrating. In the Steele Lab, research has been conducted on special agents to target new vessel formation, or “angiogenesis.” However, the anti-angiogenic agents had not been tested for interaction with radiochemotherapy in murine models, and thus their clinical relevance was minimal. Last semester, I set out with a team to design, implement and analyze an experiment to test the efficacy of adding chemotherapeutic agent lomustine (CCNU) to three anti-angiogenic treatment options under investigation. This presentation will chronicle the long, bumpy road from initial project conceptualization to final manuscript submission and all of the twists and turns in between.

Spiroxin A Derivatives as Potential Anti-pancreatic Cancer Agents

Hong Zhang '15, Chemistry

ADVISOR: *Dora Carrico-Moniz, Chemistry*

Pancreatic cancer is the fourth leading cause of cancer-related deaths in the United States and it is known for early metastasis and invasive tumor progression. Recent studies have demonstrated the ability of pancreatic cancer cells to survive nutrient starvation, a unique characteristic that normal human fibroblasts do not possess. Isolated from a marine fungus, spiroxin A has been shown to exhibit antitumor and antibacterial activities. Inspired by the potential therapeutic effect of spiroxin A, our group has initiated a structure-activity relationship (SAR) study to investigate the relationship between the structural components of spiroxin A and its biological activities. Various synthetic intermediates en route to spiroxin A were tested against human pancreatic adenocarcinoma cell line PANC-1 under nutrient-deprived and nutrient-rich conditions. Herein, we report the identification of a lead compound possessing cytotoxicity against PANC-1 cells selectively under nutrient-deprived conditions, as well as the ongoing SAR study. This project is in

collaboration with Professor Andrew Webb in the Department of Biological Sciences.

Empowering Online Learners (Short Talks)

Pendleton Hall East 139

The Visible and Invisible in a MOOC Discussion Forum

Jessica J. Bu '17, *Computer Science*

ADVISOR: Eniana Mustafaraj, *Computer Science*

Using anonymized data from a large MOOC online forum, we analyzed the behavior of its users. Active students, those who contribute to what is visible in a forum by posting and voting, represent only a third of the total number of users, with the remaining users participating passively. These latter students use the forum to supplement their learning by reading, but remain invisible. This invisible activity is something that active users as well as passive users practice, making up over 97% of total forum activity. However, our analysis shows that students who complete the course are more active in the forum, and that a larger percentage of active participants complete the course compared to passive participants. The story is more complicated though: many students who had high-activity levels in the forums did not complete the course, while many students who completed the course had low engagement in the forum.

Extending List Operators in App Inventor

Soojin Kim '15, *Computer Science*

ADVISOR: Franklyn Turbak, *Computer Science*

App Inventor is a blocks-based programming environment in which users connect puzzle-shaped blocks to build apps for Android devices. It supports a Python-like list data structure typically manipulated with loops, but it lacks important list operations like sorting and reversal that can greatly simplify list manipulation. It also lacks standard higher-order list operators such as map, filter, and reduce found in Python as well as many functional languages. My project centers around two main parts: (1) extending the implementation of App Inventor to include new blocks that map, filter, reduce, sort, and reverse lists, and assessing the usability of these new higher-order operators compared to loops and (2) modifying many list operator blocks to include a mechanism that allows users to choose between making the operator nondestructive (returns a new list

or destructive (changes the input list), and assessing the usability of this mechanism.

Folders, a Visual Organizational Tool for MIT App Inventor

Xixi Lu '15, *Computer Science*

ADVISOR: Franklyn Turbak, *Computer Science*

Visual Programming Languages (VPLs) allow users to manipulate code fragments graphically rather than textually. The spatial arrangement and connection of these code fragments, often represented as blocks, result in computer programs. The visual nature of VPLs makes programming more accessible for novice programmers. MIT App Inventor, a popular online tool for creating Android applications, is one such VPL. Users can begin creating Android applications very easily; however, the more complex the program, the more difficult it becomes to read and organize. Although, App Inventor provides some organization methods, users have little input on how the blocks will be rearranged. I worked on creating Folders, a visual organizational tool for App Inventor, as my senior thesis to address the deficiency in user-preference driven block organization. My project allows users to put their blocks into Folders and, thus, organize the blocks workspace, similar to the function of folders in the Desktop metaphor.

Social Sciences

Calderwood Seminars in Public Writing: Engaging Interviews (Panel Discussion)

Pendleton Hall East 239

Delia Maria Arias De Leon '16, *Political Science*, Tiffany K. Chan '15, *Biological Sciences and Art History*, Abigail L. Golden '15, *Environmental Studies*, Alexis Zhang '17, *Political Science*

ADVISOR: David Lindauer, *Economics*

Delia Maria Arias De Leon: In a field as controversial and marred with cynicism as politics, it is refreshing to meet someone who believes in the ability to make change happen through the political process. I was lucky to interview Steve Jarding, a prominent and passionate political consultant, through my participation in the Calderwood Seminar: American Campaigns & Elections. Jarding has advised politicians all across the globe and directed numerous successful political campaigns. We discussed his personal trajectory, the role of media in

politics, and what it takes to bring about change through politics.

Tiffany K. Chan: Professor Yui Suzuki is an evolutionary-developmental biologist who focuses his research on insect metamorphosis and regeneration. By conducting embryonic studies on several different insect species, he studies the change and control of developmental processes both throughout an individual's lifetime but also in the evolutionary context of a species. I interviewed Suzuki as the final assignment for my Calderwood Seminar: Biology in the News. I hoped not only to introduce an emerging field of Biology but also to showcase Suzuki's path into the sciences.

Abigail L. Golden: In ES 399: Calderwood Seminar on Environmental Communication and Synthesis, I chose to explore honeybees and honeybee decline. Bee pollination is required to produce over 35 percent of world food crops and, since 2004, honeybees have been mysteriously dying at alarming rates. In order to learn more about the status of local bees, I attended a meeting of the Norfolk County Beekeeper's Association (NCBA), where I met and interviewed Tony Lulek. Lulek is the former president and current Bee School Director for the NCBA. He also owns and operates Little Beehive Farm in Holliston, Massachusetts.

Alexis Zhang: Few people are able to forge successful careers in the rough-and-tumble world of politics, but Steve Jarding is one exception. Jarding is a lecturer at Harvard's Kennedy School of Government, and throughout his career, has made a specialty of guiding Democrats in red and purple states to against-the-odds victories. In November of 2014, he visited Wellesley for an interview with the Calderwood Seminar: Campaigns & Elections. During the interview, Jarding discussed his career trajectory, takeaways from the 2014 elections, and predictions for cycles to come.

Language Use and Change in Globalizing Korea: Nationalism, Diversity, Sexuality, and Pop-Culture (Panel Discussion)

Pendleton Hall West 116

Athena M. Kihara '15, *Media Arts and Sciences*, Katherine P. Rusin '17, *Undeclared*, Kathryn J. Saibara '15, *East Asian Studies*, Isabel Yu '17,

Cognitive & Linguistic Sciences and East Asian Studies

ADVISOR: *Sun-Hee Lee, East Asian Languages & Cultures*

Out with the old, in with the new. South Korea today is scarcely recognizable from the nation it was 20 years ago. In the blink of an eye Korea has transformed from third-world country to global leader in information technology and pop culture. Korea's emergence onto the world stage is well represented by a shift in language use in Korean society. During fall 2014, members of Korean 206, Introduction to Korean Language and Culture, conducted research exploring how the socio-cultural factors of globalization, nationalism, and diversity manifest in language usage. Our projects include examining language nationalism and the contradictory obsession with English, body gestures of idols, language hybridization in the composition of hip-hop music, and mania for English education. While also making cross-cultural comparisons with other Asian nations, we will discuss how Korean media and pop culture exemplify the transformation of South Korean society and cultural norms.

Perspectives from the Freedom Project I: Research on Freedom of Speech (Panel Discussion)

Jewett Arts Center 450

Anonymity, Pseudonymity, and Free Speech Online

Grace J. Hu '17, Mathematics and Computer Science, Ye Eun Jeong '16, Economics, Avanti S. Prasanna '17, Economics,

ADVISOR: *Thomas Cushman, Sociology*

What challenges does free speech face online, and what are the remedies? Exploring the existing legal and technical structures surrounding digital rights, we will present a study of online speech from three different angles. The first will investigate how the power of anonymous communication services facilitate free speech in countries that monitor their citizens, through case studies in Hong Kong, Russia, and Brunei. The second will present an analysis of past U.S. court cases as well as the drafting of speech legislation in France after the Charlie Hebdo attacks, studying how the law provides a framework for the future of anonymity on the Internet. The third will survey Internet policy in different countries

and how private and public actors impact the practice and affordance of anonymity, and whether stronger guarantee of anonymity online produces more diverse and free speech.

Are Political Donations Free Speech? The Case of Citizens United v. FEC

Audrey H. Elkus '18, Undeclared, Jessica Shin '18, Undeclared

ADVISOR: *Thomas Cushman, Sociology*

In the controversial Supreme Court case, *Citizens United v. FEC*, the Supreme Court ruled that corporations and unions have the same political speech rights as individuals under the First Amendment. Therefore, the case deemed the donation and allocation of money as another form of speech in the United States' democratic process. How did the Supreme Court construe political donations as free speech and therefore provide protection under the First Amendment? Why has this decision engendered such controversy? In our presentation, we will discuss the key elements of this case, in particular, the sociological ramifications of this decision on the American political process.

Revolution, Occupation, & Intervention (Short Talks)

Pendleton Hall West 212

Freedom or Failure? An Arendtian Analysis of the Egyptian Revolution of 2011

Elizabeth Y. Kapnick '15, Political Science and Middle Eastern Studies

ADVISOR: *Roxanne Euben, Political Sciences*

The Egyptian Revolution of 2011 is widely regarded as a failure. Egyptians and international observers argue that Egypt's inability to establish a stable, democratic government and the ascendance of Abdel Fattah al-Sisi indicate a return to an oppressive dictatorship like Hosni Mubarak's. I seek to uncover the assumptions regarding power and revolution that are implicit in this pessimistic analysis of the 2011 Revolution and to then reframe the question of whether the Egyptian Revolution of 2011 was a failure through different theoretical lenses. Using the works of Bertrand de Jouvenel and Hannah Arendt, I identify each theorist's notions of power and revolution. I subsequently analyze the events of 2011 through the unique perspective of each theorist and,

weighing these two contrasting accounts of the Revolution, draw my own conclusions on whether the Egyptian Revolution of 2011 failed or succeeded.

Should We Continue to Engage in Humanitarian Intervention?: Evaluating Libya, Four Years Later

Michelle F. Namkoong '17, Economics

ADVISOR: *Michal Ben-Josef Hirsch, Political Sciences*

On March 17, 2011, the United States and NATO authorized military intervention in Libya on humanitarian grounds to help protect Libyan citizens. Four years later, Libya has descended further into chaos, which has directly affected the region. My research explains why the intervention in Libya may be considered a failure and the extent to which the legacy of the intervention accounts for the country's current state. Despite good intentions, Libya is another case for why humanitarian intervention is often ineffective. Through the case of Libya, I explore the ongoing debate on humanitarian intervention and its relevance for, not only to future policy, but also to changing norms in international relations.

Filling Political Spaces: Iraqi NGOs in the Context of American Military Occupation

Jillian N. Seymour '15, Middle Eastern Studies and Political Science

ADVISOR: *Christopher Candland, Political Science*

My thesis examines the role of American occupation in Iraq, beginning in 2003 until complete combat removal in 2011, on Iraqi-based non-governmental organizations with humanitarian focuses. Utilizing a historical-comparative approach, the thesis explores Iraq's humanitarian organizations on a regional level, comparing the northern Kurdish region and the southern predominantly Shiite region, both of which were demarcated as "no-fly zones" by the US, UK, and France after the Gulf War of 1991, with the heavily invaded middle region that experienced the majority of American combat forces. Data collection entails a series of interviews with current members of Iraqi NGOs and officials of such American-based organizations as the United States Institute of Peace and USAID. Extensive literature review of reports conducted by international and Iraqi NGOs are also be examined to

best assess the level of improvement of Iraqi humanitarian organizations, or lack thereof, during the aforementioned time interval. While primarily focusing on Iraq, this thesis ultimately aims to illuminate the effect military intervention can have on an occupied country's humanitarian sector, a crucial element of its broader civil society.

'Defector' as Socio-Lexical Labeling: A Corpus-based Discourse Analysis of North Korean Defector Narratives in South Korea

Claire Yi '15, Peace and Justice Studies
ADVISOR: *Catia Confortini, Peace Studies*

An ever-increasing number of North Korean defectors are entering South Korea, but they are still faced with the negative prejudice and attitude prevalent in the society. In this honors thesis project, I examine the North Korean defectors' lives in South Korea through the social labeling imposed by the South Korean media and the self portrayal of the defector narratives. Critical discourse analysis will address various issues, discrepancies, and similarities with respect to the representation of the defectors in South Korea. Using both qualitative and quantitative methods, I will compare the language use of the mainstream media (news, fictional TV series, reality TV shows, and movies) and the newly forming online communities of the defectors and demonstrate how minority stereotypes are (re)produced.

Clap Along If You Feel... (Short Talks)

Pendleton Hall East 339

The Correlation between Introversion-Extraversion and Measures of Happiness

Courtney A. Brown '15, Psychology
ADVISOR: *Jonathan Cheek, Psychology*

The personality dimension introversion-extraversion and the many measures of happiness are much debated areas of psychological interest. Universally accepted conceptualizations of both introversion-extraversion and happiness have, thus far, not been determined. The present research reviewed and empirically examined the various facets of introversion-extraversion (social, thinking, anxious, and restrained) and the many aspects of happiness and individual well-being (hedonia, eudaimonia, affect, life satisfaction, self-esteem,

depression, contentment, and enjoyment of leisure activities) among a sample of six hundred Amazon Mechanical Turk workers.

Belonging in a College Community: Authenticity, Perceptions of Socioeconomic Status, and Well-being

Stephanie C. Eby '15, Psychology, Alyssa M. Jang '15, Psychology, Katherine H. Levine '15, Psychology
ADVISOR: *Sally Theran, Psychology*

Are college students' perceptions of their socioeconomic status (SES) related to increased mental health problems? This study explored a recently-developed concept: perceived SES, defined as one's perceptions of SES in relation to immediate peers, and its relation to objective SES, well-being, and inauthenticity. Participants completed measures of well-being in order to determine whether lower perceived SES would be related to higher rates of depression and social anxiety symptoms. Lower perceived SES was significantly correlated with increased symptoms of depression, but not increased social anxiety symptoms. Additionally, inauthenticity in college relationships partially mediated the relation between perceived SES and depression. These findings may be useful for promoting a more inclusive community in college.

Implications of Adolescent Narcissism for Functioning in Later Adulthood

Haruka Notsu '15, Psychology
ADVISOR: *Paul Wink, Psychology*

My study investigated the long-term implication of adolescence narcissism on psychological and physical health in late adulthood (age 70s). I used longitudinal data from the Institute of Human Development at University of California, Berkeley study. The study participants, born in the 1920s, were assessed in adolescence and four times in adulthood (ages 30s, 40s, 50s and 70s). Narcissism was measured through observer rating. High narcissism in adolescence was predictive of poor psychological and physical functioning in late adulthood. Poor psychological functioning in late adulthood was particularly characteristic of adolescents who scored high on narcissism and who experiences stressful life events in early to middle adulthood. The link between adolescent narcissism and poor physical health in late adulthood was mediated by alcohol use. The study's findings reinforce the importance of adolescent personality

characteristics for physical and psychological functioning later on in life.

Empowerment vs. Threat: How Aspects of Identity Affect Performance on Stereotyped Tasks

Lauren T. Westendorf '15, Psychology
ADVISOR: *Julie Norem, Psychology*

Stereotype threat arises from the fear of confirming a negative stereotype about one's social group, and can interfere with optimal performance. This study explored whether gender identification moderates stereotype threat effects among a sample of cisgender, transgender and gender non-binary students at Wellesley, Smith, and Mount Holyoke. Participants completed measures of gender identity and were then exposed to one of four experimental conditions" no threat, threat based on gender socialization, threat based on gender identity, and threat combined with empowerment. I predicted that empowerment will decrease the effect of stereotype threat on spatial cognition performance, while stronger stereotypical gender identity will increase those effects.

Whispers to Shouts (Short Talks)

Science Center 278

Combating the Patriarchy and Ethnocentrism in Tanzania: Where do Women and Feminism fit in?

Kayla E. Bercu '16, Undeclared
ADVISOR: *David Ellerby, Biological Sciences*

Despite having made headway towards completing the Millennium Development Goals, Tanzania continues to struggle with gender disparities. The socio-political, historical, and residual patriarchal government influences the burden on Tanzanian women. A highly disproportionate number of women continue to face inequalities and inequities in areas of health, education, child/forced marriages, and mortality. Constructed social norms perpetuate violence against women. If we truly believe that, "A world that is good for women is good for everyone" how can feminist principles be ethically employed in a variety of contexts? What should we consider acts of feminism?

Si Se Puede: Unheard Voices of Latina Women In Kern County

Sophia M. Garcia '15, Environmental Studies
 ADVISOR: *Irene Mata, Women's & Gender Studies*

Kern County is located at the southern end of California's Central Valley, with a population of 900,000, 49% which identify as Latino. The county has a rich history with oil and agriculture, and has been portrayed by authors such as John Steinbeck in his famous book, *The Grapes of Wrath*. While notable authors have written about the county the influence that Latinos had remain to be widely recognized. But since the 1965 grape strike Chicano leadership has been present in the valley. Dolores Huerta who fought beside Cesar Chavez in the fight to end injustice for farm workers helped pave the path for other Latinas to be strong sources of leadership in their community. Today Latinas hold public office, are assembly members, lawyers and college graduates. I will present my research on the current state of Latina Leadership in Kern County and the impact they have had on their community.

Military Perception of "Don't Ask, Don't Tell"

Melodie V. Ha '15, Political Science and Chinese Language & Culture, Rose A. Owen '16, English and Political Science
 ADVISOR: *Miya Woolfalk, Political Science*

In 2011, Congress repealed Don't Ask, Don't Tell (DADT), allowing gays and lesbians to serve openly in the military. Due to the military's resistance to DADT's repeal, it seems soldiers may have a predisposition to heterosexism. If so, the sudden shift in the military's policies may lead to hostile treatment of gays and lesbians who choose to reveal their sexuality. Few studies have been conducted on soldiers' and veterans' opinions of gays and lesbians serving in the military, and none have assessed whether military service causes soldiers and veterans to feel that gays and lesbians shouldn't be allowed to serve. After analyzing 2008 and 2012 ANES data, we found that military service causes veterans to show less support than civilians for allowing gays to serve openly in the military. Given our findings, we suggest that future research be conducted on the group dynamics within the military that may foster heterosexist attitudes.

Humanities

Euler: An Interactive Sound Installation (Exhibition) Science Center 277

Ariana N. Mora '15, Music
 ADVISOR: *Jenny Johnson, Music*

Given my diverse background, I wanted to develop a thesis that reflected my various interests in music and science. I discovered the thrill and freedom of electronic music in my junior year, and this sound installation, "Euler", is an exploration of the intersections present between math, music, and nature. I found with continued investigation that these three aspects are intrinsically connected, which can be shown musically through careful compositional techniques. Using sounds recorded from nature, including sounds I recorded on my trip to the rainforests of Costa Rica this winter, I had my "notes" to form my composition, and my responsibility was then the same as any other composer: create something that evokes thought or emotions from sounds. With this interactive sound installation, I hope to pass the proverbial baton to the audience so they themselves can act as composers and surround themselves in a rich sound and visual space.

The Short Film, From Theory to Production (Panel Discussion) Science Center 274

Ayana K. Aaron '15, Cinema and Media Studies, Katharine A. Barsotti '15, Cinema and Media Studies, Adrienne A. Ogle '15, Cinema and Media Studies, Gladys Raygoza '15, Cinema and Media Studies, Elizabeth S. Tyson '15, Cinema and Media Studies, Abra G. White '15, Cinema and Media Studies & Media Arts and Sciences
 ADVISOR: *Winifred Wood, Writing Program*

After a semester working on a film set, we six students brought our expertise back to Wellesley and embarked on a collaborative film journey. With the help of the Pamela Daniels Fellowship, and the CAMS program, our cinematic dreams became a reality in the form of three short films. Exploring the genres of comedy and drama, we formed a production company, PE Req Films, and spent the semester further educating ourselves about the art of the short in a CAMS 350 independent study. In order to get the full experience of a film set, we each assumed different roles on each project:

producer, director, writer, cinematographer, gaffer, and sound mixer. Experiential learning combined with student-led theoretical discussions allowed us to gain both practical and academic knowledge of short films as an art form. During this presentation, we will screen the three short films we made, last semester.

Transforming Space (Short Talks) Science Center 270

Art Deco and the Sartorial City

Tiffany K. Chan '15, Biological Sciences
 ADVISOR: *Alice Friedman, Art*

The term "Art Deco" refers to a group of artistic works created between the two World Wars (from 1918 to 1939). While the Roaring Twenties represented the dawn of a glorious new age of prosperity and technological innovation, artists looked back upon history with nostalgia. They fused aesthetics from around the world with contemporary elements to forge a style moderne. This negotiation between future and past resonates throughout fashion photography and architecture. In the work of Horst P. Horst (1906-1999) for *Vogue* magazine, Horst photographed glamorous models meant to elicit envy and desire in the American consumer. The Chrysler Building, completed by William Van Alen, also helped to sell the modern lifestyle. Thus, through the manipulation of popular imagery, corporations tried to create fantasies that catered to popular tastes: "Art Deco" was the ideal style in which to present these new messages.

Translation: Body, Movement, and Space

Isabella C. Frontado '15, Architecture
 ADVISOR: *Daniela Rivera, Art*

As an architecture student, with a focus on urban design, I am interested in understanding space through the visual mapping of human movement. For this project, I explored the movement of a dancer through space, focusing on pauses in her movement. I translated the movement into a series of two-dimensional line drawings, each of which provided me with a structural understanding of the movement of the body. I then explored these structural translations in alternate mediums, pulling them away from two-dimensional forms, into more three-dimensional representations. I created

three-dimensional wire drawings, which provided a structural understanding of movement, as it exists in space. As I continue to work on this project, I hope to find ways of translating the relationship between body, movement, and space.

The Graduate Center: Gropius and Bauhaus Ideology in the Crimson Context

Jocelyn S. Wong '15, *Art History*
ADVISOR: Patricia Berman, *Art*

The Harvard Graduate Center dormitory complex is an emblem of the pedagogy and design ideology that Bauhaus-founder Walter Gropius brought to Harvard University. University President Conant appointed Gropius as the head of architecture at the Graduate School of Design, where the Bauhaus icon pioneered new pedagogical structures. The Graduate Center is a manifestation of the ideology Gropius injected into the conservative climate of Harvard University. Glass curtain-walls suffused interior spaces with sunlight, conducive for the healthy living that Bauhaus philosophy so cherished. Small private living quarters encouraged congregation in communal spaces, thus fostering intellectual exchange and collaborative learning, a shift away from traditional Beaux-Arts methods. Commissioning the Gropius-led firm The Architects Collaborative (TAC) to design the Graduate Center marked Harvard University's pivotal departure from the solemn grandeur of Gothic cathedrals and the stateliness of Georgian courts.

Science & Technology

Investigating the Mechanism of Direct Protein-Protein Interaction between the Cardiac Potassium Ion Channel Proteins HERG and KvLQT1 (Panel Discussion)

Founders Hall 126

Estelle Kim '15, *Biological Sciences*, Yeon Joo Lee '15, *Neuroscience*, Medeea C. Popescu '17, *Biological Chemistry*
ADVISOR: Louise Darling, *Biological Sciences*

In every pump of the heart, a wave of ions floods into each cardiomyocyte, propagating an electrical impulse that allows millions of cells to contract and relax the muscle in

unison. HERG and KvLQT1 are two ion channels integral to repolarization, serving to “reset” the heartbeat. The Darling lab at Wellesley investigates the interaction of these two proteins by expressing KvLQT1 and HERG as fusions to fluorescent markers in cellular systems. We use biochemical assays such as Western blotting and imaging techniques like Forster Resonance Energy Transfer to understand the mechanism of HERG-KvLQT1 interactions. Our data suggest that the physiologically important molecule cAMP is directly involved in modulating interaction, and we continue to test this hypothesis. Future studies will focus on the implications of these interactions for cardiac physiology: studying the molecular basis of current regulation is a step towards understanding cardiac arrhythmia and the heartbeat's response to environmental factors.

The Invasive Potential of *Bromus tectorum* in Cape Cod Dune Ecosystems (Panel Discussion)

Collins Cinema

Abigail L. Golden '15, *Environmental Studies*, Shivani Kuckreja '16, *Economics and Environmental Studies*, Kathy Long '15, *Economics and Environmental Studies*
ADVISOR: Alden Griffith, *Environmental Studies*

Invasive plants have become a global phenomenon and can aggressively encroach upon native plant populations. Studying invasive plant species allow us to understand how and to what extent they can alter local ecosystems. We examined the annual grass, *Bromus tectorum*, which is native to Eurasia and is well established in the United States. It is highly invasive in the Western U.S., especially in the Great Basin area, yet few studies have examined it in the East. In our study, we looked at its invasive potential on Cape Cod. Specifically, we analyzed the population dynamics of *B. tectorum* in a coastal dune ecosystem, including seed production and dispersal, survival, and seedling establishment. We also conducted community sampling in order to understand how *B. tectorum* interacts with its surrounding species. Our results reveal substantial variation in population growth, but with the capacity for rapid annual growth. Moderate soil disturbance strongly increased seedling establishment with important population-level consequences. Additionally, particular plant species were

associated with the presence or absence of *B. tectorum*. An important goal going forward is to continue to monitor population dynamics and to test whether our observations have predictive power elsewhere on Cape Cod.

The Relationship between the Innate Immune System and Adult Neurogenesis in the Crayfish, *Procambarus clarkii* (Panel Discussion)

Jewett Arts Center 450

Kara M. Banson '17, *Neuroscience*, Zena K. Chatila '16, *Neuroscience*, Emily L. Cockey '15, *Neuroscience*, Jingjing Li '15, *Neuroscience*, Jody F. Platto, *Senior Davis Scholar, Neuroscience*
ADVISOR: Barbara Beltz, *Neuroscience*

Adult neurogenesis, or the birth of new neurons in the adult brain, is common in both vertebrates and invertebrates. Current investigations in mammalian models suggest that stem cells involved in adult neurogenesis are self-renewing and produce lineages of neuronal precursor cells. Based on our studies of the crayfish, *Procambarus clarkii*, we have found that although the pool of first-generation neuronal precursors in the neurogenic niche are never depleted, these cells are NOT self-renewing. Recent work has demonstrated that the immune system is one source of these neuronal precursors in the crayfish. The goals of our ongoing work are to further elucidate this relationship. One aim is to identify which tissues within the immune system generate these neuronal precursor cells. A second aim is to confirm the morphological properties and targets of the newborn cells.

America's Next Top Element (Short Talks)

Pendleton Hall East 139

Optically Detected Magnetic Resonance of Nitrogen-Vacancy Centers

Carina A. Belvin '16, *Physics*
ADVISOR: Robert Berg, *Physics*

Atom-sized defects in diamond known as nitrogen-vacancy (NV) centers have recently attracted much interest for their potential use as qubits in quantum computers. Whereas classical bits have a value of either 0 or 1, qubits can be in a state of 0, 1, or a superposition of these two states. As a result, quantum computers can perform computations much more quickly and solve more complex problems than classical

computers. An NV center can function as a qubit, where the two states of the qubit are the two spin states of the NV center. The spin state can be manipulated using microwave radiation and then read out optically. This year, I have been working towards performing optically detected magnetic resonance (ODMR) experiments of NV centers. Our ultimate goal is to isolate and manipulate a single NV center as a qubit. (This work was supported by the STC Center for Integrated Quantum Materials, NSF Grant No. DMR-1231319.)

A Coupled Schrodinger Equation Approach to Modeling Predissociation in Sulfur and Carbon Monoxides

Kathryn E. Ledbetter '15 Chemical Physics and Classical Civilization

ADVISOR: *Glenn Stark, Physics*

Light is an important ingredient in many chemical reactions, so understanding the chemical behavior of atmospheres and other astronomical collections of gases relies on knowledge of the photochemistry of each molecule present. Because some conditions can be difficult to reproduce experimentally, models which explain light-matter interactions are necessary. We use the Coupled Schrodinger Equation technique to produce models of the interaction of sulfur monoxide and carbon monoxide with ultraviolet light, including predissociation. Predissociation is a specific type of dissociation caused by discrete, instead of continuous, bands of wavelengths. Because different isotopes will interact with bands of slightly different wavelengths, predissociation can lead to mass-independent isotope fractionation effects, which are an important marker of the history of both extraterrestrial objects and our own planet. (Research supported by a Schiff Fellowship)

Design and Construction of an Autocorrelation Device to Identify Single Nitrogen Vacancy Centers in Diamond

Eunice Y. Paik '15, Physics

ADVISOR: *Robert Berg, Physics*

The nitrogen-vacancy (NV) center is a defect in the structure of diamond, roughly the size of a single atom, that possesses properties that make it applicable to quantum computing, high-resolution magnetic resonance imaging, and probing biological systems. When an NV center is excited by a green photon, a short time later it emits

a red photon. By detecting the intensity of the emitted red light using a confocal microscope, we can determine the quantum state of a single NV center, which is crucial for various applications. We have built an autocorrelation device that measures, with sub-nanosecond accuracy, the statistical distribution of the arrival times of the emitted red photons at a detector. When the collected light is due to a single NV center there is a vanishing probability that two photons arrive at the same time.

Illuminating the Small (Short Talks)

Pendleton Hall West 116

The Role of Copper in the Oxidative Stress Response of *Chlamydomonas reinhardtii* to Heat Shock

Michelle R. Brann '15, Chemistry

ADVISOR: *Adele Wolfson, Chemistry*

In response to stress, cells produce reactive oxygen species (ROS) which cause molecular damage in the form of DNA breaks and modification of lipids and proteins. ROS are also important in cell signaling to induce differential gene expression, metabolic changes and, thus, adaptation to environmental conditions. I hypothesize that ROS response is a common denominator of different environmental challenges, including radiation and microgravity, during spaceflight. Algae, such as the unicellular green alga *Chlamydomonas reinhardtii*, grown in spaceflight are exposed to stress. The goal is to characterize the response of *C. reinhardtii* to stress by examining biochemical and gene expression changes using heat shock. The heat shocked (42°C) *C. reinhardtii* exhibited a selective regulation of ion transporters and an increase in ROS. Such results provide new insights about the cellular response to stress and its possible mediation during long-term environmental pressure (including spaceflight), and provide a basis for understanding multicellularity evolution.

Effect of the Spiroiminodihydantoin (Sp) Lesion on Nucleosome Stability

Liana J. Goehring '15, French

ADVISOR: *Megan Nunez, Chemistry*

During cellular respiration, reactive oxygen species (ROS) escape from mitochondria to oxidize cellular components including DNA. Of all four DNA bases, guanine has the lowest redox potential, resulting in the

oxidation of DNA to form 8-oxoguanine (8-oxoG). Because it has an even lower redox potential than guanine itself, 8-oxoG is likely to be even further oxidized. Of the potential products that can result from the oxidation of 8-oxoG, the formation of spiroiminodihydantoin (Sp) is of particular interest, as it appears to be even more mutagenic than 8-oxoG. Previous investigators demonstrated that the Sp lesion significantly destabilizes duplex DNA when compared to both its parent lesion 8-oxoG and guanine. As the structure of genomic DNA in chromatin is more complex, our goal is to examine the effect of the Sp lesion on nucleosome formation.

Quantitative Investigations of Ammonia Radiolysis

Nathalie Rivas '15, Biological Chemistry,

Katherine D. Tran '15, Chemistry

ADVISOR: *Christopher Arumainayagam, Chemistry*

Many studies seek to understand the basic mechanisms that drive the synthesis of “complex” interstellar molecules detected via spectroscopy. While UV photolysis has been one proposed mechanism, we seek to understand the role of secondary low-energy electron-induced reactions in these radiolytic processes. Using post-irradiation temperature-programmed desorption (TPD), we have investigated the radiolysis initiated by high-energy (1000 eV) electrons in condensed ammonia at ~90 K under ultrahigh vacuum (1x10⁻⁹ Torr) conditions. We have found evidence for the formation of two condensed-phase ammonia radiolysis products: hydrazine (N₂H₄) and diazene (N₂H₂). Quantifying the amount of product formed as function of various irradiation parameters (e.g., electron dose) provides useful kinetic parameters, such as cross sections for the electron-induced destruction and desorption of condensed ammonia.

Structural Determinants of Promiscuous and Specific Binding in Protein: Protein Complexes Using Component Analysis Techniques

Aiman Sherani '15, Chemical Physics

ADVISOR: *Mala Radhakrishnan, Chemistry*

The interactions of proteins with other proteins drive biological function. Understanding the physical and chemical principles governing specificity and promiscuity in protein-protein binding

is important both for understanding mechanisms of molecular recognition and for designing novel biomolecular systems. We use computational techniques to identify the frequencies of occurrence of structural moieties (e.g., side chains and backbones of individual residues) and differences in their energetic contributions within promiscuous and specific protein-protein interactions. To achieve this goal, we are testing multiple hypotheses; for example, we hypothesize that specific proteins, which selectively bind to only one partner, preferentially utilize side chains to mediate binding when compared to promiscuous proteins, which may utilize the structurally consistent backbone moieties more preferentially. Two sets of protein complexes, identified by the literature to be either promiscuous or specific, are being analyzed to test our hypotheses. Preliminary results suggest statistically significant differences between the contributions of certain structural moieties between the two sets.

Exploring Playthings: Piloting a New Toy (Interactive Teaching Presentation)

Founders Hall 120

Katherine E. LeVine '15, Computer Science
ADVISOR: *Barbara Beatty, Education*

Play is an important aspect of a child's life. Through play a child is able to reconstruct reality, work through social-emotional challenges, and express many forms of creativity. Targeting the age of 4-5 year olds, I have explored the history of play environments and playthings and observed extensively at the Child Study Center, to enable me to design and pilot a toy. This session will introduce the audience to play as if they were instructors in a professional development workshop. As a part of a toy pilot, audience members will investigate play through playing with prototypes of the toy I have designed and piloted with children, as well as learn about how this toy and concept could be integrated into a learning environment. Audience participation will be encouraged and expected, including filling out a survey after the session using a link I will provide.

Social Sciences

Perspectives from The Freedom Project III: Race, Identity, and Freedom (Panel Discussion)

Science Center 104

The Institution and the Individual: A Critique of the Libertarian Approach to Racism

Sydney Stewart '18, Undeclared
Thomas Cushman, Sociology

Libertarian philosophy emphasizes strongly the importance of individual autonomy and recognizes all people's rights to life, liberty, and property. Social scientists see institutionalized racism as a major force that infringes on these human rights and has had a profoundly negative impact on the lives of racial minorities, particularly people of African descent in the US. In institutions with strong patterns of racial prejudice and discrimination, how can we ensure that the libertarian ideals can be realized? This presentation outlines a libertarian approach to freedom, and its limitations, in light of the ongoing realities and negative consequences of institutionalized racism.

The Paradoxes of Identity Politics

Presenters: Ningyi Xi '17, Art History, Tina Xu '17, Philosophy and Political Science
ADVISOR: *Thomas Cushman, Sociology*

The foundation of identity politics is the shared experience of historical and contemporary injustices of members of certain social groups. The goal of identity politics is to achieve some sense of justice for groups and elevate them to equal status with the rest of the society. Quite often, however, the emphasis on the experiences of members of identity groups can serve to separate and isolate identity groups from others and in some cases lead to conflicts between marginalized social groups and work against the common goal of reducing injustice. This presentation examines the paradox of identity politics from political, sociological, and linguistic perspectives.

Puzzles in International Security: Producing Political Science Honors Theses (Panel Discussion)

Science Center 278

Kendall L. Bianchi '15, Political Science and Economics, Wenyan Deng '15, International Relations and Political Science, Lavanya Ganesh '15, Political Science and Economics, Claire J. Tam '15, Political Science
ADVISOR: *Stacie Goddard, Political Science*

We present our political science thesis research topics, including private military contracting, Sino-US relations, American drone warfare, and spoiler violence. Kendall discusses the implications of private contracting in small-scale American interventions by exploring U.S. involvement in Colombia in the early 2000s. What lessons does Colombia offer for future U.S. contracting efforts? Wenyan analyzes Sino-U.S. relations during the Cold War. Why did Sino-U.S. confrontation persist, despite the fact that the USSR seemed to present a greater danger to both? Lavanya examines whether air and drone strikes have been effective in diminishing the al Qaeda insurgency and militancy in Yemen. Are drones counterproductive to U.S. security goals? Do they inspire more violence? Finally, Claire evaluates the 1997 split within the Irish Republican Army. Did dissidents seek to undermine the peace process or did negotiations present opportunities for local leaders to exploit existing divisions and consolidate power?

Finding Political and National Identities (Short Talks)

Pendleton Hall East 239

Satisfaction, Skepticism, or Succession?: Evaluating Euroscepticism Through Study of Denmark and the United Kingdom

Oset Babur '15, Political Science
ADVISOR: *Joel Krieger, Political Science*

This talk will look to pinpoint the influences of eurosceptic parties in the European Union, by focusing on the United Kingdom Independence Party (UKIP) and the Danish People's Party (DPP), with regards to the current and future state of European integration. Euroscepticism will be broken down into 'hard' and 'soft' branches, based on the kinds of impacts suggested by each parties; a 'soft' influence over the concern of

state sovereignty might be a party's decision to support discourse that is skeptical of a united Europe, while a 'hard' influence may be proposing legislative motions to leave the EU on grounds of a lack of accountability between EU institutions and member governments. The talk will conclude by looking forward at the future of Eurosceptic parties, and hypothesizing about their continued impact on EU enlargement and integration, as well as the impacts they will have on their local political systems.

Optimal ECB Policy: Lessons from Stress in EMU Member Countries

Angela Y. Gu '15, Mathematics and Economics
ADVISOR: *Akila Weerapana, Economics*

In light of the current woes of the Eurozone, it is easy to forget the excitement at the inception of the European Monetary Union fifteen years ago. Eurozone countries willingly forfeited their own currency and monetary policy autonomy to join the currency union, lauding its apparent benefits. The collapse of the U.S. housing market in 2007, however, exposed weaknesses in the structure of the Euro area. Countries within the EMU faced different sets of macroeconomic conditions, rendering the ECB incapable of implementing the optimal policy for each member country. Defining economic stress as the difference between the ECB policy rate and the ideal policy rate in an EMU country (had it monetary policy autonomy), I quantify each country's stress as well as examine how each country's stress affects ECB policy and vice versa.

Prosjekt Nytt Nasjonalmuseum: Negotiating a Norwegian Identity

Diana T. Huynh '15 Art History and Political Science
ADVISOR: *Craig Murphy, Political Science*

My research explores how a national museum is used as cultural strategy for urban development and national identity building. Throughout history, the national museum has functioned as a pillar of culture, and by extension the rhetoric of the nation in itself. Drawing from the history of national museums' origins that emerged in Europe, but today pertains to nearly every country in the world, I consider the new National Museum of Art, Architecture and Design in Oslo as a case study to analyse the questions surrounding this political nexus.

Mind the Gap: Exploring the Ideological Differences Between Tea Partiers and Republicans

Zoe R. Magid '15, Political Science, Elena R. Scott-Kakures '15, Political Science and Middle Eastern Studies
ADVISOR: *Miya Woolfalk, Political Science*

Examining whether Tea Partiers are actually ideologically distinct from those in the Republican Party, and what causes such an anticipated gap will allow us to further explore the Tea Party, its relationship to the GOP, and their futures in American politics. We are interested in resolving these questions, and learning about the ideological composition of Tea Party members. Though some existing literature has predicted a swift end to the Tea Party, much as we've seen with the Occupy movement, the Tea Party is still strong today. We want to explore just how this movement has adapted over time, and through this predict what could be in store for their future position in politics.

I'm Only Human: Childhood and Beyond (Short Talks) Pendleton Hall West 212

Frustration & Motivation: How Frustration Impacts Persistence, Ratings of Enjoyability and Interest, and Students' Willingness to Do It All Over Again

Kelsey A. Brown '15, Psychology
ADVISOR: *Christen Deveney, Psychology*

Frustration is an emotion that many can relate (e.g. sitting in rush hour traffic or struggling on a problem set). However, what we fail to realize, is that emotions such as frustration have severe implications for cognition and may even shape our motivation. As students, emotion and motivation are central to our everyday experiences and our ability to learn. Some studies have shown that experiencing frustration during homework significantly decreases students' motivation to persist on an assignment. To date, no studies have examined the effect frustration has on motivation and persistence outside of homework. This project evaluates how level of induced frustration (high vs. low) during a primary computer task, impacts subsequent: 1) motivation to persist on a secondary task, 2) ratings of interest and enjoyment on the second task, and 3) willingness to come back and do the same or similar tasks again in the future.

Understanding the Relationship between Injured Female Dancers, Alternatives to Dance Participation, and Self-Esteem and Body Image

Sarah Hitchner '15, Women's and Gender Studies
ADVISOR: *Wendy Wagner Robeson, Wellesley Centers for Women*

The relationships between injured female-identified dancers, alternatives to dance participation, and their self-esteem and body image was explored. Using surveys and interviews, information was gathered from 133 (ages 16 -22) female dancers, their dance and injury history, and any alternative form of participation engaged in while injured. Body image and self-esteem were measured using the Rosenberg Self-Esteem Scale and the Body Appreciation Scale. Regression analyses revealed that when comparing various forms of alternative participation, physical conditioning following an injury is related to higher body image scores ($p < 0.04$), and mental practice of movement following an injury is related to higher self-esteem scores ($p < 0.053$) when compared to not doing any kind of alternative participation. These results highlight how important it is for dancers and their instructors to know how to maintain body image and self-esteem when an injury occurs.

Relationship of Impulsivity and The Menstrual Cycle to Attitudes Towards Spending, Debt, and Shopping

Molly E. McNamara '15, Spanish and Neuroscience
ADVISOR: *Margery Lucas, Cognitive and Linguistic Sciences*

Impulsivity can contribute to money problems in women through propensities to impulse shop, failures to save, and accumulation of debt. Recently, the effects of a biological factor, fluctuating ovarian hormones across the menstrual cycle, on women's impulse shopping has been demonstrated. This study will further investigate the effects of the cycle and of impulsive tendencies, especially as they relate to decisions about money, on spending and shopping behaviors. I am also interested in how these factors interact with women's body image. Finally, mood states will also be assessed.

Preschool Friendship Formation and Unilateral Friendship Outcomes

Maile M. Wong '15, Psychology and Theatre Studies

ADVISOR: *Tracy Gleason, Psychology*

I examined friendship formation in preschool-aged children by identifying social processes observed at Time 1 related to friendship outcomes at Time 2. I focused on “unilateral” dyads, pairs of children in which only one child has nominated the other as a friend. These relationships include interest in friendship but not yet fully, reciprocated friendship. Seventy-four preschoolers participated in this study. Unilateral dyads were identified from sociometric interviews, and observed during a 10-minute dramatic play session. Teachers reported the amount of time dyads spent together and their common activities. I had three hypotheses: unilateral friendships that develop into reciprocal friendships would 1) speak more to each other and make more mutual/partner play statements, noncompliant/disapproving statements, and commands/requests 2) be characterized by greater cohesiveness, harmony, responsiveness, inclusiveness, and coordinated play 3) spend more time together and engage in more common activities than those dyads that remain unilateral or become non-friend relationships.

Mind Matters (Short Talks) Pendleton Hall East 339

Everyone Likes a Copycat

Heather L. Kosakowski, Senior Davis Scholar, Neuroscience

ADVISOR: *Margaret Keane, Psychology*

How do we choose our friends? What factors do we consider when deciding who would be an engaging social partner? Some factors seem intuitive, such as a shared language, music, or food preferences. Some factors, such as mimicry, are less obvious. People like people who imitate them better than people who do not. Although mimicry often goes unnoticed by people interacting socially, acts of imitation lead to reports of increased likeability. Interestingly, infants make similar judgments when choosing social partners. Infants have a preference for someone who speaks the same language, shares a food preference, or sings a song previously sung by a parent. My research aims to develop our understanding of the basis of mimicry in choosing social partners.

The findings from this research may support the theory that imitation is one of the building blocks of knowledge that infants have in regards to choosing social partners.

The Impact of Executive Functioning on Speech Production in Monolinguals and Bilinguals

Jeanne Gallee '16, Cognitive and Linguistic Sciences and Psychology

ADVISOR: *Andrea ttt, French*

Prior research has shown that bilinguals outperform monolinguals in various non-linguistic tasks of executive functioning; however, at the same time, the majority of research examining a related and overlapping process, language production, has found relatively decreased production in bilinguals. Given inconsistencies in the literature regarding enhanced executive functioning performance and the associated language production in bilinguals, the specific nature of such an advantage remains unclear. We examined the nature of the bilingual advantage by investigating performance in three different components of executive functioning: inhibition, shifting, and updating. 71 monolingual and 72 bilingual participants recruited from the University of Washington's psychology subject pool performed three executive functioning tasks and four manipulated speech tasks examining each of the three components. Come learn about the benefits and deficits that monolinguals and bilinguals face respectively on a daily basis. This summer research was funded by the Roberta Day Staley and Karl A. Staley Fund to conduct off-campus through the Wellesley College Science Center.

Watching TV during Reading Period: A Do or a Don't

Syeda M. Mahbub '15, Mathematics and Psychology

ADVISOR: *Margaret Keane, Psychology*

Memory is often better for events or items that are remembered in a context similar to the context in which they were first experienced. This phenomenon is known as the context effect. We examined the effect of two different kinds of context on memory: video and background color. Participants studied concrete words (e.g. flower, yacht, bucket) and abstract words (e.g. kindness, memory, fate) embedded on a video or a colored background context. A few minutes later they were asked to recall words in a

video/background color context that was either similar to or different from the study context. We predicted that memory for words would be better when the context at recall matched the context at study. Our findings may have implications for studying and taking exams: Because we cannot watch Netflix while taking exams, it is probably best not to watch it while studying either!

Why Guys Think They're Funny: A Sociolinguistic Perspective on the Gender Divide in Humor

Christina G. Rozek '15, Cognitive and Linguistic Sciences and Italian Studies

ADVISOR: *Andrea Levitt, French*

Have you ever heard someone claim that men are just funnier than women? When you are in groups with male and female friends, does it seem like the men crack all the jokes while the women are expected to laugh at them? Some theories in evolutionary biology provide compelling explanations for why it is more crucial for men than for women to be funny. I offer an alternative sociolinguistic perspective on how the gender divide in humor has arisen and reasons for why it may be changing, including the frequent association of women with a less powerful speech style. This year I investigated how people respond to jokes told by men and women using both powerful and powerless speech styles. Results suggest that the features of powerless speech have a significant effect on humor perception.

Sleep, Study, Tweet @ Wellesley (Short Talks)

Science Center 396

Digital Ethnography, Wendy Wellesley, and #WellesleyCollegeProbz

Claire A. Cerda '15, Sociology
ADVISOR: Thomas Cushman, Sociology

For the past four years, an anonymous Twitter project titled “WellesleyProbz” has documented, engaged with, and critically analyzed Wellesley’s on-campus culture. The project raises important questions about the complicated persona known as “Wendy Wellesley,” how storytelling can connect communities through feelings of shared experience, and how social media can be used as a method for documenting, preserving, and enriching historical records. WellesleyProbz models the popular online satirical meme “First World Problems,” which highlights social dynamics including power, race, ethnicity, gender, sexuality, norms, and human behavior. On Twitter, WellesleyProbz has acquired over 1,300 followers in four years, and has high user engagement from students, faculty, alumnae, and residents of the town of Wellesley - even Hillary Clinton and Madeleine Albright! The presentation will use sociology and anthropology as frameworks to address how WellesleyProbz can be used as an analytical tool, as well as serve as a method of documentation and preservation.

The Wellesley College Housing Lottery: Version 2.0

Emily D. Cetlin '15, Mathematics, Han-Ching E. Haw '16, Computer Science
ADVISOR: Sobie Lee, Computer Science

Revamping the housing lottery seemed a perfect fit with our newly acquired programming and data manipulation skills. Previously, Wellesley has used minimal technology in the process of sorting students into their residence halls for the following year. We found that many elements could be automated. This inspired us write a computer program to maximize the efficiency of all parties involved.

Our program provides one solution to the existing system. Our proposed solution mostly impacts the administrative side by removing the need to manually sort roughly 2,300 pieces of paper, one for each student on campus. We also hope to make it more convenient for students to complete and

submit their housing preferences online, instead of printing and delivering forms.

This project has enabled us to experience working on a large scale project, communicating with a “client,” and applying the tools we have learned in the classroom thus far.

We Were Only First-Years: Understanding the Successes and Failures of Shadow Grading at Wellesley College

Rebecca A. Hosey '15, Spanish
ADVISOR: Thomas Cushman, Sociology

For the past four years, an anonymous Twitter project titled “WellesleyProbz” has documented, engaged with, and critically analyzed Wellesley’s on-campus culture. The project raises important questions about the complicated persona known as “Wendy Wellesley,” how storytelling can connect communities through feelings of shared experience, and how social media can be used as a method for documenting, preserving, and enriching historical records. WellesleyProbz models the popular online satirical meme “First World Problems,” which highlights social dynamics including power, race, ethnicity, gender, sexuality, norms, and human behavior. On Twitter, WellesleyProbz has acquired over 1,300 followers in four years, and has high user engagement from students, faculty, alumnae, and residents of the town of Wellesley - even Hillary Clinton and Madeleine Albright! The presentation will use sociology and anthropology as frameworks to address how WellesleyProbz can be used as an analytical tool, as well as serve as a method of documentation and preservation.

Sparkling Change (Short Talks)

Pendleton Hall West 117

Contextualizing Student Activism for Palestine

Nour Azzouz '15, Neuroscience, Eliza W. Marks '15, Middle Eastern Studies
ADVISOR: Catia Confortini, Peace Studies

After Summer peration Protective Edge, more students than ever before are joining the Palestine solidarity movement. How will this movement contribute to peace, justice and stability in Israel-Palestine and how does it fare in comparison with past and current student-led campaigns for social justice on US campuses? This talk

will thoroughly explain the reasons for, and goals of student activism for Palestine, place the this solidarity movement in the broader context of campus activism in the United States (and at Wellesley College), and critique the efficacy of the activities through which this movement strives to achieve its goals. Ultimately, we will demonstrate the importance of campus advocacy and activism for providing students the opportunity to practice skills they gain in the classroom; more broadly, we will show how the student-led solidarity movement for Palestine can, and is, contributing to the improvement of social, political and economic conditions in the region.

A New Era for Research: How the Internet and Grassroots Social Movements Shape Space Policy and the Research Cycle

Hannah E. Harris '16, Physics
ADVISOR: Kim McLeod, Astronomy

An analysis of various national and international space missions reveals how public-led grassroots movements affect public policy and government funding. The Hubble Space Telescope, James Webb Space Telescope, International Sun-Earth Explorer 3, and others reveal trends that correspond to new models of the academic research cycle in the digital age. With the advent of crowd-funding and crowd-sourcing, space initiatives have shifted away from being under the sole jurisdiction of governmental agencies and corporations, creating a space for innovators and amateur astronomers. This changing landscape in policy has the potential to expand our capabilities and deepen our understanding of the universe.

Looking Like Me on TV; How Mainstream Racial Representation Impacts Civic Engagement

Jalena A. Keane-Lee '17, Political Science and Cinema and Media Studies
ADVISOR: Nicholas Knouf, Cinema and Media Studies

How does what we see on TV impact the way we view the world? Using empirical data from Linda Charmaraman’s national media and identity survey and historical to contemporary texts, this presentation will examine the diversity of mainstream TV and how it impacts voter turnout.

Charging Up Battery Recycling: Does Legislation Produce Net Environmental Benefits?

Leah M. Nugent '16, Environmental Studies and Anthropology
 ADVISOR: *James Turner, Environmental Studies*

Extended Producer Responsibility (EPR) is an increasingly popular policy strategy for addressing the challenges of waste management and recovery. EPR requires manufacturers of a designated product (e.g. paint, tires, or batteries) to pay for that good's end-of-life management costs. EPR programs are intended to produce net positive environmental impacts by encouraging product manufacturers to pursue sustainable waste management practices, including recycling. Four existing EPR policies for single-use batteries in the European Union (EU), Canada, and U.S. have attempted to achieve these net environmental benefits. While the laws are an important step towards battery waste management, they do not contain adequate provisions to ensure that the policies achieve net environmental benefits. In fact, the environmental burdens of recycling may exceed the benefits. For EPR policies to be effective, they need to consider the environmental consequences associated with each part of a product's life-cycle, from production and manufacture to collection and recycling.

Humanities

Studies, in Various Media, of the Human Skeleton (Exhibition)

JAC-Gallery

Hanna G. Day-Tenerowicz '16, Comparative Literature and Art History, Grace Q. Fang '17 Computer Science and Italian Studies, Zhixing Fei '16, Architecture, Nadine C. Franklin '18, Undeclared, Christine J. Galloway '17, Art Studio, Marissa R. Klee-Peregon '16, Art Studio and Cognitive & Linguistic Sciences, Juyon Lee '18, Undeclared, Emily A. Moore '18, Undeclared, Madison A. Morgensai '18, Undeclared, Ci Qu '16, Economics and Art Studio

ADVISOR: *Bunny Harvey, Art*

Students explore the human skeleton for six weeks, developing drawings in a variety of media. These homework assignments support the major ongoing work of the class: drawing the live model.

Kino: A Hitchcockian Short Film (Film Screening)

Collins Cinema

Elizabeth S. Tyson '15, Cinema and Media Studies

ADVISOR: *Winifred Wood, Writing Program*

For her senior thesis, Lilly Starr Tyson '15 chose to create a short film inspired by the works of Alfred Hitchcock. In this film she explores themes of voyeurism, distrust of technology, psychopathy, and the all-seeing eye of the camera.

The Music That Survived the Fire: A Historical Examination of Brahms' Piano Trio No. 1 (Long Performance)

Jewett Auditorium

Kathleen R. Regovich '16, Music, Pallas C. Riedler '17, Undeclared, Shanti E. van Vuuren '17, Undeclared

ADVISOR: *Jenny Tang, Music*

Johannes Brahms's first piano trio, Op. 8 in B Major, was originally composed in 1854, (the same year Robert Schumann attempted suicide) when Brahms was only 21, and revised and republished nearly 40 years later. Although Brahms claimed he "did not provide the trio with a wig, but just combed and arranged its hair a little," his edits were extensive and reflect his development as a composer. We will present a historical,

harmonic and structural analysis of Brahms's first published chamber work and be performing the 1890 revised version.

Is Love Translatable? Translation and Interpretation of Love Poems From Different Cultures (Panel Discussion)

Jewett Arts Center 450

Alyssa Y. Hahn '17, Undeclared, Xueni Jin '17, Comparative Literature, Eunkyung Kim '18, Undeclared, Momo Wang '17, Psychology, Pamela N. Wang '17, Media Arts and Sciences, Bo Rim Yoon '17, Undeclared
 ADVISOR: *Mingwei Song, East Asian Languages & Cultures*

Love is an eternal theme of poetry across languages and cultures, but it has always been difficult to convey such a vigorous sentiment through translation due to a poem's cultural specificity and a language's grammatical constraints, most notably its acoustic qualities. The struggle that translators often confront is often between presenting a poem with literal accuracy and preserving its holistic beauty. Members of Wellesley in Translation will share their translated work of selected love poems from Chinese, Spanish and Korean literature as well as the choices they make during the translation process.

Reflections on Race and Gender in Contemporary Art (Panel Discussion)

Pendleton Hall West 212

Sabrina A. Giglio '15, American Studies and Art History, Courtney N. Jackson '15, Africana Studies, Anneliese M. Klein '15, Africana Studies, Zoe Talia M. Schreiber, Undeclared
 ADVISOR: *Nikki Greene, Art*

In the Fall 2014 ARTH 316 seminar exploring race and gender in contemporary art, three Wellesley students chose to research objects created by artists of color in the Davis Museum, while a fourth created her own performance piece. Sabrina Giglio '15 will discuss her experiences interviewing John Woodrow Wilson, famous for his many renderings of Dr. Martin Luther King, Jr. Courtney Jackson '15 will explore Adrian Piper, and her attempt to show viewers what it means to be a colored woman artist fighting to create subjective work and gain recognition in the art world through her oeuvre. Zoe Schreiber will examine Edward and Nancy Reddin Kienholz' Sawdy, a

mixed media assemblage in which the Kienholz include the viewer to enables them to comment on the legacies of racial violence in post-Civil Rights Movement America. Last, Anneliese Klein '15 will address her 2014 original performance piece, "I Am The Alien Interloper".

Poster Session Science Center Forum

Teaching about Religions in American Public Schools

Christiana T. Joseph '16, Anthropology and Religion

ADVISOR: *Sharon Elkins, Religion*

The prevailing attitudes about teaching religion in public schools stem from a multiplicity of cultural associations and understandings. Many scholars argue that increasing religious literacy helps decrease conflict between various religious groups that arise from ignorance, prejudice, stereotyping and mutual suspicion. Instead of imposing religious values onto impressionable minds, these scholars contend that allowing students the opportunity to learn about world religions will make them more socially aware and responsible members of their communities. But clearly not all Americans agree. My research explores the implications of incorporating teaching about religions in public schools and considers how decisions are made about permitting religious observances and practices in public schools.

Science & Technology

The Encompassing Spectrum of Biological Chemistry Thesis Research (Panel Discussion) Science Center 277

Sebiha M. Abdullahi '15, Biological Chemistry, Angela C. Ai '15, Biological Chemistry, Mwangala P. Akamandisa '15, Biological Chemistry, Elena N. Cravens '15, Biological Sciences, Audrey A. Fran '15, Biological Chemistry

ADVISOR: *Megan Nunez, Chemistry*

This year, the Biological Chemistry thesis projects truly spanned the range of the discipline. Some students gravitated towards the chemistry side and aimed to understand how low-energy electrons form biologically relevant compounds in outer space. Other students hovered in the biological realm and

attempted to model partial lipodystrophy in stem cell-derived adipocytes. Still others found their interests somewhere in between, by investigating the role of the COW1 protein family in protonemal development, establishing predictive models for lipid binding in SEC14 proteins, or developing transgenic moss lines to help visualize how signalling lipids localize during tip growth. Wherever on the spectrum their research interest fell, each student relied on a mastery of both biological and chemical concepts, as well as good old-fashioned problem solving. In this panel, five BIOC/BISC thesis students will present their respective findings to collectively demonstrate the relevance of biochemistry in understanding the world around us.

Poster Session Science Center Forum

Examining the Impact of Point Mutations L1569H and L1663T on the Stability and the Secondary Structure of the Human Notch 2 Heterodimerization Domain

Stephanie M. Kim '17, Biological Chemistry, Isabelle M. Schoppa '17, Psychology and Mathematics

ADVISOR: *Didem Vardar-Ulu, Chemistry*

Notch receptors are transmembrane glycoproteins of a signaling pathway that is crucial in regulation of cell differentiation and developmental processes in multicellular organisms. The Notch protein consists of an extracellular domain containing the ligand binding domain and the negative regulatory region (NRR), and an intracellular domain. Our research focuses on point mutations in the NRR's Heterodimerization (HD) region that are associated with T-cell acute lymphoblastic leukemias/lymphomas (T-ALL). Previous work showed that two T-ALL-associated Leu to Pro mutations in the HD region's core had different effects on stability and secondary structure of the NRR. Our work examines two unique T-ALL-associated mutations, L1569H and L1663T. While L1569H and the previously studied mutations are in the hydrophobic core, L1663T is on the interface of the HD and the LIN-12 Repeats that comprise the NRR. This research contributes to an understanding of the relative importance of structural integrity versus stability in T-ALL cases.

Sampling requirements for long-term ecological monitoring of fish communities

Melaina A. Wright '15, Biological Sciences
ADVISOR: *Jocelyne Dolce, Biological Sciences*

Long-term monitoring is needed to identify the annual and decadal shifts in abundance of fish communities in response to natural ocean processes, as well as, climate change and other anthropogenic stressors. CALCOFI-the California Cooperative Fisheries Investigations program-is virtually unique in using fish larvae surveys to follow trends in regional fish communities. There is need to monitor fish communities elsewhere, but the expense of large sampling programs like CALCOFI and the concern that reduced sampling programs may not be able to capture the same trends in abundance as large programs due to the patchy distribution of fish larvae has prevented their establishment. Using principal component analysis, I evaluated the potential of smaller sampling programs to capture the dominant trends in the annual mean abundance of key fish species and multivariate (community) trends in abundance by analyzing transects and time series of varying length.

(Research supported by a NSF funded REU program)

Effect of Cell Culture Components on the Preferential Cytotoxicity of Isoprenylated Coumarin Derivatives

Yin Y. Wang, Senior Davis Scholar, Hong Zhang '15, Chemistry, Ronghao Zhou '17, Mathematics and Chemistry

ADVISOR: *Dora Carrico-Moniz, Chemistry*

Pancreatic cancer is one of the most devastating forms of human cancer. The lack of effective clinical treatments for pancreatic cancer has led to one of the lowest five-year survival rates (6.7%) among all cancers. Recently, our laboratory has reported a novel series of isoprenylated coumarin derivatives that have exhibited selective cytotoxicity against human pancreatic adenocarcinoma cell line PANC-1 under nutrient-deprived conditions. In this study, we report the effect of the various cell culture components on the preferential cytotoxicity of the coumarin derivatives against pancreatic adenocarcinoma cell line PANC-1. In addition, two other pancreatic cancer cell lines were examined under both nutrient-rich and nutrient-deprived conditions.

This project is in collaboration with Professor Andrew Webb in the Department of Biological Sciences.

A Systematic Study of the Stress Response Induced by Low pH treatment of Heavily Contaminated Water on Viability and Protein Expression Profiles of E.coli

Olivia K. Gada '17, Biological Chemistry
 ADVISOR: *Didem Vardar-Ulu, Chemistry*

Drinking water is one of the most efficient ways to transport a diverse set of pathogens to a vast number of people, resulting in widespread illness, and in some cases death. As such, water quality is a serious public health concern worldwide. Due to their low cost and easy accessibility, common household materials such as bleach and vinegar, have been used for water decontamination for decades. However, there are only a very small number of systematic and quantitative studies on the efficacy of these methods as well as their impact on the biochemical profile of the pathogens. *Escherichia coli* (E.coli) is commonly used as an indicator of bacterial contamination due to its prevalence and high mortality rate. In this study, we examined the effects of low pH established by varying concentrations of different acid treatments on E.coli viability and protein expression profiles. A combination of standard culture plating assays and spectroscopic measurements were used to assess viability and determine the minimal acid concentration needed to keep bacterial levels below the EPA's safe drinking water limits. Matrix-Assisted Laser Desorption Ionization (MALDI) Biotyper was used to analyze changes in the unique protein fingerprint of E.coli harvested at different time points after being subjected to multiple rounds of acid treatment. This work represents the initial step in identifying the E.coli proteins whose expression is altered in response to acid stress. This information would be important in determining if acid stress results in bacterial resistance and if so, help to developing strategies to overcome it.

From where and so what?: Geographic origin and genetic consequences of a species introduction to the Galapagos archipelago.

Mary K. Dornon '17, Biological Sciences, Sara M. Eslami '17, Biological Chemistry, Anna C. Hakes '17, Biological Sciences, Sarah J. Pangburn '16, German Language & Literature

and Biological Sciences, An N. Ton '17, Biological Sciences
 ADVISOR: *Andrea Sequeira, Biological Sciences*

On an ecological scale, introduced species can cause the dislocation and possible extinction of resident species. At a genetic level, hybridization with endemic species can cause the endemic or resident species to lose important adaptations. The weevil *Galapaganus howdenae* proliferated after its human-mediated introduction to Santa Cruz island in the Galapagos Archipelago from continental Ecuador. Two endemic close relatives inhabit Santa Cruz Island: *Galapagnus conwayensis* and *Galapaganus ashlocki*. Although there is no morphological evidence for hybridization between *G. h. howdenae* and endemic species, its expansion to the highlands of Santa Cruz demonstrates the weevils' ability to invade other areas. In order to understand *G. h. howdenae*'s invasive impact in Santa Cruz, we explore both its invasive history and the potential for interspecies hybridization, using phylogeography methods and comparing mitochondrial and nuclear interspecies gene flow, respectively.

Study of the Structural Composition and Stability of the Critical Interfacial $\beta\pm$ -Helix in the Negative Regulatory Region of the Notch Receptor

Wendy S. Ma '17, Biological Sciences, Anita Wo '17, Psychology
 ADVISOR: *Didem Vardar-Ulu, Chemistry*

Notch receptors constitute a family of type I transmembrane glycoproteins that play an integral role in signaling for normal cellular development, including adult homeostasis and stem cell maintenance in an evolutionarily conserved signal transduction pathway. In this study, we investigated the structural composition and stability of two isolated peptides corresponding to helix 3 in human Notch1 and Notch2 using circular dichroism spectroscopy. This work represents the initial step in identifying the relative importance of specific LNR-HD interfacial contacts in stabilizing helix 3 and offering a mechanistic understanding for its critical role in the autoinhibitory interdomain interactions.

Effect of GnRH on Thimet Oligopeptidase within Prostate Cancer Cells

Yesenia Ramirez '15, Italian Studies and Chemistry
 ADVISOR: *Adele Wolfson, Chemistry*

As prostate cancer cells lose sensitivity towards androgens, the effect of gonadotropic releasing hormone (GnRH), becomes more important as a growth factor in cell proliferation. The enzyme thimet oligopeptidase (TOP) has the potential to break down and thus attenuate the effects of GnRH and other peptide growth factors. TOP plays an important regulatory role in steroid hormone production, and may have implications for treatment of prostate cancer. In order to analyze the effects of TOP in the cell proliferation process, androgen-sensitive prostate cancer cells were treated with dihydrotestosterone or GnRH. TOP activity was measured with a quenched fluorescence assay and TOP localization was determined by confocal fluorescence imaging. Quantification of TOP levels was obtained via immunoblot. Results demonstrate an increase in TOP levels and activity after treatment with GnRH. This tentatively suggests that GnRH exerts negative feedback on its own activity.

What Powers Powerful Women: The Future of Energy at Wellesley College (Panel Discussion)

Science Center 274

Catherine E. Baltazar '16, Environmental Studies and Cinema and Media Studies, Rebecca Y. Chen '16, Environmental Studies, Katherine A. Corcoran '15, Environmental Studies, Sophia M. Garcia '15, Environmental Studies, Jibelah O. Greenwald '16, Mathematics, Shivani Kuckreja '16, Environmental Studies and Economics, Shuangxou Long '15, Economics and Environmental Studies, Alisha M. Pegan '16, Environmental Studies, Emily A. Scoble '15, Japanese Language & Culture and Environmental Studies
 ADVISOR: *Beth DeSombre, Environmental Studies*

Energy, defined as "activity in work", exists in various forms, whether in the context of thermal, chemical, mechanical, or biological processes. At Wellesley College, the cogeneration (Cogen) power plant produces energy such as electricity, hot water, and air conditioning for the campus. Built in 1994, the Wellesley power plant

was considered a technological marvel, primarily using natural gas which is cleaner and releases fewer greenhouse gas emissions than other fossil fuels. Now, over two decades later, the power plant has become obsolete and replacements are no longer being manufactured. Not only does this pose major uncertainties about the reliability of the plant in the future but there are also environmental, social, and economic factors to consider. With this in mind, the ES300 team will present their findings on Wellesley's current power plant situation, and propose recommendations and goals for practical practices and technologies to improve efficiency.

Social Sciences

The Current Status of Afghan Refugees in New Delhi: Afghan refugees stuck in the liminal phase (On Location Presentation) Science Center 278

Jessica F. Saifee '16, Neuroscience and South Asia Studies

ADVISOR: *Neelima Shukla-Bhatt, South Asia Studies*

This study sought to understand the present status of healthcare among Afghan refugees in New Delhi, India. The research questions were: What is the current status of healthcare for Afghan refugees in New Delhi, India and why are there limited healthcare resources for them? A comprehensive review of the services provided by current and former UNHCR partnerships was done in order to evaluate Afghan refugee's healthcare status. The study looked into the healthcare facilities accessibility and financial burden posed by medical expenses to Afghan refugees. The Voluntary Health Association of Delhi (VHAD) supported the study's fieldwork. Primary methods of data collection included interviews with Afghan refugees from various socio-economic classes, former and current UNHCR partners, a critic of the UNHCR, and international marketing directors of private hospitals. This investigation sought to understand how the precarious status of Afghan refugees in India affects their ability to fulfill their healthcare needs.

Perspectives from The Freedom Project IV: Rights and Freedom in the United States (Panel Discussion) Science Center 104

Gun Control: Positive versus Negative Freedom

Melissa S. Pettit '15, Psychology and Political Science

ADVISOR: *Thomas Cushman, Sociology*

The distinction between negative and positive freedom is a major point of contention in many political debates. Whether people define freedom negatively and view freedom as the absence of constraints or define it positively and view it as the ability to facilitate action, shapes how they view politics, policy, and the ideal role of government in society. Disagreement over competing conceptions of freedom can mitigate achieving consensus on how to achieve it. This presentation examines the gun control debate in the US from the point of view of theories of positive and negative freedom. Do we have more freedom with or without the right to bear arms?

Are Political Donations Free Speech? The Case of Citizens United v. FEC

Audrey H. Elkus '18, Undeclared, Jessica Shin '18, Undeclared

ADVISOR: *Thomas Cushman, Sociology*

In the controversial Supreme Court case, *Citizens United v. FEC*, the Supreme Court ruled that corporations and unions have the same political speech rights as individuals under the First Amendment. Therefore, the case deemed the donation and allocation of money as another form of speech in the United States' democratic process. How did the Supreme Court construe political donations as free speech and therefore provide protection under the First Amendment? Why has this decision engendered such controversy? In our presentation, we will discuss the key elements of this case, in particular, the sociological ramifications of this decision on the American political process.

Engineering for Humanity: Helping Elders Age in Place through Partnerships for Healthy Living (Panel Discussion)

Pendleton Hall East 339

Olivia B. Duggan '17, Sociology, Fabiana R. Vivacqua '18, Undeclared
ADVISOR: *Caitrin Lynch, Anthropology (Olin College)*

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 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.)

Learning by Giving (Panel Discussion) Founders 126

Sarah A. Hucklebridge '17, English, Yoo Ri Kim '15, Sociology and Economics, Emma C. Slade-Baxter '15, Philosophy, Chloe J. Stroman '15, English

ADVISOR: *Lee Cuba, Sociology and Anne Brubaker, Writing Program*

In this team-taught course, we learned about the non-profit world, homelessness in 21st century America, and, most important, the giving process, from grant writing to foundation deliberation and award making. The title of the course, as well as its structure, captures its mission: learn about philanthropy and its role in addressing complex social issues through the process

of giving a \$10,000 grant. Simple enough idea, or is it? How did learning about an issue inform the giving process? This panel will reflect on how the learning process influenced the giving process.

Projects and lessons from Paradigms, Predictions, and Joules (PPJ), an Experimental Olin/Wellesley Transdisciplinary Course (Panel Discussion)
Pendleton Hall West 117

Julia A. O'Donnell '15, Physics
ADVISOR: *Daniel Brubaker, Geosciences*

What happens when you try to mix thermodynamic system modeling with ethical, political, or religious behavior? Can you draw a concept map summarizing the collapse of an island society? How does one take a systems approach to dealing with all the realms of social justice and environmental status? Last semester professors Rob Martello (History of Science and Technology, Olin College) Dan Brabander (Geosciences and Environmental Studies, Wellesley College) attempted to answer some of these questions in a project-based, transdisciplinary course called Paradigms, Predictions, and Joules: A Historical and Scientific Approach to Energy and the Environment (PPJ). As a new sustainability certificate program course, PPJ prioritized developing a transferable set of tools and attitudes (ranging from quantitative modeling to ethics) applicable to sustainability studies. In this session, students will present about projects from the course ranging from concept map development to modeling past or present societies' qualitative and quantitative sustainability. You'll also hear about the open-ended "Change the World" assignments, strong personal (intrinsic) motivation projects aimed at producing tangible environmental impacts, which have expanded course themes beyond the walls of the classroom.

REPRODUCTION: Rethinking Families through Gamete Use, The Internet and Legal Challenges (Panel Discussion)
Science Center 396

Serene A. Beltran '17, Women's & Gender Studies, Nicole L. Blansett '15, Economics,

Jacqueline G. McGrath '17, Women's & Gender Studies, Jordan L. Parker
ADVISOR: *Rosanna Hertz, Women's & Gender Studies*

Marketing Our Eggs: Visual Representations of Race, Class, and Gender on Donor Gamete Websites

In recent years assisted fertilization has become a more viable option for many prospective parents and has increasingly become an accepted route of family planning. While in previous decades, arrangements between intended parents and egg/sperm donors or surrogates have been made via personal relationships or in-person donor clinics, a great deal of these arrangements are now made via the Internet. Websites such as Circle Surrogacy and California Cryobank are focused on matching intended parents with their perfect donor or surrogate, using various markers of race, class, and gender to literally construct the identities of their donors. Although these websites are able to greatly expand the networks of donors and intended parents, what are the implications of marketing the human genome by using the constructs of race, class, and gender? In this presentation I explore the world of online gamete marketing and consider the immediate and long-term effects on our society.

Donor Conceived Families and Their Impacts: A Case Study

Jacqueline G. McGrath '17, Women's & Gender Studies

Donor gametes benefit all types of families who wish to have a child with their own DNA, even if it means only half of their child's genes are known. Donor conceived families are unconventional forms in which parents and children endure an unknown don as part of their identity while striving for normalcy. As a way to culminate my research about the meaning of family involving donor conception, I will present a case study of a donor conceived teenager in a single mother by choice family. There are many intricacies that change donor conceived families, such as the depth of the donor's profile, their possible interactions with the donor, donor siblings, and personal emotions or connections involved.

In the case study I will present, I will discuss one teenager's intricate family structure to understand what constitutes

family, and how much genetics and blood play a role in identity. Moreover, I will discuss how the "missing piece" and mystery of a donor affects donor conceived family's lives and its implications for the new future of unconventional families.

Social Web and Third-Party Reproduction

Jordan L. Parker

Based on interviews with over 50 donor-conceived offspring and 20 egg and sperm donors, this presentation discusses the ways in which the social web has both revolutionized the choices for people seeking to enter into third-party reproduction arrangements and created new possibilities for connection among egg and sperm donors, donor conceived offspring, and parents. I will establish who within the fertility community is using particular social platforms, for what purposes they are being used, and how the features of each platform direct the types of interactions that take place. I will also explore group dynamics, feelings of connectedness, direct communication versus observation, and the evolving boundaries of family. In addition, I will analyze some of the dichotomies that have formed because of the social web, including the desire for more choice in third-party reproduction versus growing concern about the lack of regulation in the online marketplace.

The Intent to Parent: U.S. Law and Surrogacy

Nicole L. Blansett '15

Abstract: Despite its long history, surrogacy occupies a grey area in U.S. law. Some states ban the practice, while others choose to regulate it. Laws vary by state and frequently fail to define legal relationships to the child. Existing legal uncertainty is dangerous for both parents and children. This talk will examine existing legal precedent and make a case for the application of relational contract theory in setting state surrogacy policies. It will also advocate a shift from parental rights discourse to parental responsibilities. Although it is impossible to eliminate uncertainty from surrogacy agreements, clearer standards and stronger regulation will create a safer and friendlier legal space for all involved. As the ways in which we construct families continue to evolve, efficient policy must not only answer the question of who is

a parent, but also if there is room for more than two.

Asia Rising (Short Talks)

Pendleton Hall East 239

Trade, Poverty and Inequality: Evidence from the End of the Multifiber Arrangement in India

Narayani Gupta '15, Economics

ADVISOR: *Pinar Keskin, Economics*

Does free and fair trade benefit the workers in an industry? My thesis aims to investigate this question in the context of the Multifiber Arrangement, a system of quotas established in 1974 to protect the textiles industries in developed countries by restricting cheaper imports from developing countries. Uplifting of these quotas mandated by the WTO between 1995 and 2005, therefore, meant opportunities for greater textile production in internationally-competitive developing economies such as India, where the textile industry accounts for over 4.5% of global production and is the second largest generator of employment after agriculture. In labor intensive industries, an increase in production should further mean more employment, higher wages and improved livelihood. Using variation in the pre-agreement industry mix across states in India, my thesis examines the impacts of the MFA phase-outs on textile production for exports, and a subsequent impact on development indicators such as employment, poverty, and inequality.

Businesses as Development Agencies: Modern Economic Development in East Asia

Nicole H. Kang '15, History and English

ADVISOR: *Yoshihisa Matsusaka, History*

In the 20th century, East Asia experienced tremendous economic growth, catching up to their “modern” Western counterparts. With Britain leading the way, the cotton-textile industry and the Industrial Revolution made the “modern” Europe of the 19th and 20th centuries. This modernization and economic growth took place steadily over the course of 300 years, arguably, but in East Asia, particularly in Japan, that growth took about 100 years. This accelerated growth happened not just because of government industrial policy and the push to modernize, but due to companies with private-sector industrial policies and long-term business strategies that suggested a

broader industrial development. This can be seen in companies like Mitsui Bussan, whose focus on long-term growth and development meant having industrial policies that not only helped the company but also the still-developing Japanese economy.

The Asia Society: A Window for Understanding Changing Geopolitics and Cultural Diplomacy

Rebecca E. Selch '17, Sociology

ADVISOR: *Peggy Levitt, Sociology*

Since 1956, the Asia Society has responded to and furthered U.S. interests in the Asia/Pacific region. Initially founded to teach Americans about Asia through art and culture, the Society now teaches the globe about Asian/Pacific culture, economics, and politics via their national and international offices and museums. To understand the seismic changes at the Society over the past fifty-nine years, and how they reflect changing political and economic interests, I examine its role in cultural diplomacy over time. I untangle the intended and unintended beneficiaries of the Society’s diplomacy to understand how art and culture has been used over time to protect and disrupt geopolitical hierarchies.

Health, Benefits, & Access (Short Talks)

Pendleton Hall East 139

The Growth in the VA’s Disability Compensation Program: The Role of Health

Isabella J. Dougherty '15, Economics and Chinese Language & Culture

ADVISOR: *Courtney Coile, Economics*

The VA’s Disability Compensation (VADC) program, which provides cash benefits for qualifying disabled veterans, has been growing rapidly since 2001. The drivers of the program’s growth are not well understood with worsening health as one possible driver, but recent liberalizations of medical eligibility criteria may also play a role. This study deconstructs the recent growth in the VADC program into the share due to worsening veteran health and the share due to other factors. I use NHIS data to estimate the relationship between health and receipt of VADC benefits in the late 1990s, and then use those estimates with the actual health of recent veterans to project the share of today’s veterans that would be on the program if eligibility criteria had not

changed. Findings may help policy makers as they consider how to balance the needs of wounded veterans against rapidly rising program expenditures.

Hold the Sirens: The Economics of Overstated Inefficiency in Emergency Departments

Iris W. Lin '15, Biological Sciences, Marika A. Psychojos '15, English

ADVISOR: *Courtney Coile, Economics*

In 1992 about half of emergency department (ED) patients sought non-urgent care (Baker and Baker, 1994; Williams, 1996). At the time, the television show “ER” popularized the term “GOMER,” which means “Get Out of my Emergency Room” in order to describe the vast number of patients who visited the ED without a need for emergency services. As a result of a number of health economic trends and forces, only 8-12% of patients in the ED today seek non-urgent care (NHAMCS, 2011). We examine the factors behind this drastic decrease and debunk the myth that non-urgent patients alone cause EDs to be overpriced, over-packed, and overused. Certainly, there is room to reduce health care spending due to non-urgent ED visits (and we discuss the current efforts to do so), but many current economic calculations of average and marginal costs grossly overestimate the potential for savings.

The Effect of Social Security on Elderly Migration and Location Choice

Elaine Tang '15, Economics and History

ADVISOR: *Daniel Fetter, Economics*

Increasing taxation, reducing benefits, and raising the retirement age are popular topics of debate surrounding the Social Security program. Past research has shown that lower benefits decrease independent living and homeownership, and increase poverty amongst the elderly. However, we know little about how levels of Social Security benefits influence elderly migration and location choice which may have important implications for the welfare of the elderly, especially if it affects their proximity to their children. With metropolitan housing costs soaring, would lower levels of Social Security benefits force retirees to move from high-cost to low-cost locations? A simple comparison of retirees with higher versus lower benefit levels is problematic since the two groups systematically differ in many ways. I shed light on this question by exploiting the natural experiment of the Social Security

“notch” to examine the effects of an exogenous change in Social Security benefits on where the elderly live.

Is Democracy the Answer: Differential Outcomes in the Treatment of the Global HIV Epidemic

Kathleen L. Zhu '15, Political Science
ADVISOR: *Craig Murphy, Political Science*

There are 35.3 million people living with HIV/AIDS, with 1.6 million deaths from AIDS annually. But the prevalence rate and mortality rate are not evenly distributed internationally as 95% of HIV infections occur in the developing world. The HIV epidemic varies dramatically from country to country; for instance the estimated HIV prevalence rate in Thailand is 1.1% yet it is as high as 17.9% in South Africa. Some countries respond swiftly to the epidemic, while other countries take many years to initiate a meaningful response. Why does the overall HIV outcome and response vary dramatically from country to country? Although I originally hypothesized that democratic governments face greater pressure from their citizens to address the HIV epidemic, and thus would have a stronger response, I have found that this is often not the case. I have found that autocratic countries can respond highly effectively, while democratic countries struggle.

Interdisciplinary Approaches to Public Health (Short Talks) Pendleton Hall West 116

Mental Illness Stigma in South Asian Cultures

Tahani R. Chaudhry '16, Psychology
ADVISOR: *Stephen Chen, Psychology*

Mental illness stigma may act as a deterrent to mental health treatment among members of different cultures. I was interested in examining two types of stigma in the South Asian population: onset responsibility, -stigma that attributes mental illness to individuals' own negligent behaviors and courtesy stigma, discrimination experienced by family members of individuals with mental illness. My research investigates how cultural values and education in psychology may influence the endorsement of onset responsibility and courtesy stigma. An electronic survey, distributed to a multiethnic sample of students, assessed onset responsibility and courtesy stigma towards two mental illnesses: schizophrenia

and depression. I hypothesized that students from different ethnic groups would vary in their endorsement of collectivist values and interdependent self-construals, and these values would be positively associated with courtesy stigma but negatively associated with onset responsibility. Furthermore, I hypothesized that education in psychology would be associated with lower onset responsibility and courtesy stigma.

Longitudinal Trends in Children with Severe Early Onset Childhood Obesity

Adrienne E. Lage '16 Classical Civilization and Spanish
ADVISOR: *Adam Matthews, Biological Sciences*

The prevalence of severe childhood obesity continues to increase at a time when obesity is an epidemic amongst the general population. In this study we will use empirical data to analyze the correlation of the mathematical model of the Center for Disease Control's (CDC) Body Mass Index (BMI) charts with the trend of children with severe early onset obesity. We found that the longitudinal trends in BMI show a faster velocity than the trends predicted by the CDC growth curves. It is possible that these differences of velocities for BMI trends indicate a possible genetic predisposition for obesity. These findings suggest a strong genetic component to severe early onset obesity. Therefore, we propose the development of a new application utilizing a multi-point scoring system that would allow physicians to determine a patient's qualification for genetic testing to determine the genetic basis of severe early onset obesity.

Inoculation Strategies for Polio: Modeling the Effects of a Growing Population on Public Health Outcomes

Meredith L. McCormack-Mager '16, Mathematics
ADVISOR: *Alexander Diesl, Mathematics*

The World Health Organization has called for global eradication of Polio but the disease remains endemic in three countries. Nigeria, one of these countries, presents a particularly interesting problem in eradicating the disease due to its fast-growing population and median age of 18. This research uses population models to predict the best vaccine intervention protocols and investigate the burden of disease in the country based on this atypical population structure. Further study of the model also provides a framework for how

to defend communities against future Polio outbreaks. Special thanks to Dr. Jay Walton of Texas A&M University for overseeing this project.

Fighting Sexual Violence in Online Communities: New Advocacy for New Media

Sahitya C. Raja '15, Biological Sciences
ADVISOR: *Jennifer Musto, Women's and Gender Studies*

YouTube is the third most visited website in the world. Since 2007, videobloggers such as John Green, Hannah Hart, and Jenna Marbles have amassed followings in the millions, creating vast networked communities of fans of online video.

In recent years, over thirty accounts have been published documenting sexual abuse committed by many prominent YouTube personalities. It quickly became apparent that inadequate resources were available to survivors of violence committed within online communities. In response, I helped form a group called YouCoalition dedicated to addressing sexual violence in YouTube and other online communities.

Since March of 2014, YouCoalition has been working to combat sexual violence in online communities through innovative grassroots action in order to reach communities not served through traditional resources. In this presentation, I will discuss YouCoalition's work as well as the nature of online harassment and abuse using a framework of theory surrounding networked communities and networked harm.

Poster Session Science Center Forum

Stereotypes about Women of Different Sexual Orientations

Simone N. Liano '17, Neuroscience, Hyun Jin Sohn '15, Psychology
ADVISOR: *Linda Carli, Psychology*

Our study examined people's perceptions of women of two different sexual orientations (lesbian versus straight). We investigated differences in how agentic, communal, and dominant these groups are perceived to be (i.e., descriptive stereotypes), as well as how agentic, communal, and dominant they are desired to be (i.e., prescriptive stereotypes). Our results demonstrate that people view lesbian women as possessing

more traditionally masculine qualities compared to straight women, but people do not necessarily desire them to have such qualities. More specifically, people perceived lesbian women as being less communal and more agentic and dominant than straight women. Yet, lesbian women were desired to be more communal than they were perceived to be. Regardless of sexual orientation, all women were desired to be less dominant. The present study's findings call for further investigation of ways in which stereotypes of women of different sexual orientations and races interact with one another, and affect gender discrimination and leadership.

Transgender Age of Awareness and Mental Health

Elijah L. Cohen '15, Women's and Gender Studies and Psychology
ADVISOR: *Linda Carli, Psychology*

Throughout the Fall 2014 semester, and in coordination with researchers at The Fenway Institute of Fenway Health, I completed an independent study, which examined the relationship between the age at which transgender individuals become aware of their gender identities and their later mental health outcomes. We hypothesized that younger ages of awareness would lead to worse mental health later in life, including increased depression and negative body image. Furthermore, we expected that worse body image would predict increased depression and that this relationship would exaggerate that between age of awareness and depression. Using bivariate and multiple regressions, we investigated the predictive nature of age of awareness, as well as current age, gender identity, race, education, survey modality, and employment, on transgender individuals' depression and body image. While some of our hypotheses were unconfirmed, we found other predictors of mental health outcomes in transgender people.

Culture and Science of Blood (Panel Discussion)

Science Center 270

Nicole E. Anderson '18, Undeclared, Yelim Lee '18, Undeclared, Farida M. Virani '18, Undeclared, Helena Z. Yan '18, Undeclared
ADVISOR: *Justin Armstrong, Writing Program*

Our class, The Science and Culture of Blood (ANTH/CHEM 107), focused on the anthropology and chemistry of blood, something that most people seem to actively

avoid despite its prevalence in our everyday lives. Cross-culturally, blood acts as a symbol, and in some cases, a powerful taboo. Our presentation combines social science and natural science as a means of unpacking the significance of such a common substance. From an anthropological perspective, we explore the near-universal taboo of menstrual blood. Menstrual taboos exist almost everywhere and are sometimes manifested in material forms such as the menstrual isolation huts used in parts of rural Nepal. Looking at blood through the lens of chemistry, the tainted blood and the blood doping scandals are used to examine why, on a microscopic scale, blood becomes a contentious issue. Discussions of blood from these vastly different disciplines illuminates why blood is truly the stuff of our lives.

Humanities

Peanut-Butter-Jelly Days (Exhibition)

JAC-Gallery

Mary E. Kery '15, Computer Science
ADVISOR: *Daniela Rivera, Art*

"All happy families are alike; each unhappy family is unhappy in its own way." (Leo Tolstoy) If all "happy families" look the same, is it an illusion? This group of paintings examines a single American middle-class family and those events that all appear ubiquitous: washing dishes, doing laundry, Christmases and Birthdays. In painting the artist attempts to pull apart brutal and eerie moments that pass beneath the calm veneer of everyday.

Enter Stage Right...Carefully Please! (Long Performance)

Ruth Nagel Jones Theatre

Kendra Cui '18, Undeclared, Mara Elissa Palma '15, Political Science and Theatre Studies
ADVISOR: *Nora Hussey, Theatre Studies*

A peak behind the scenes at the creation and execution of Mary Shelley, The Lion in Winter, Homefront, and a Cabaret Soiree. Members of the Wellesley Theatre Community present scenes and monologues and a glimpse into the process of creating theatre from the first reading to the closing performance. In addition to the performances, there will be a talk back with the audience about the lure and lessons of creating theatre on stage and behind the scenes.

Hear Me Moan: Speak-Out on Sexual Pleasure and Desire (Panel Discussion)

Science Center 396

Hannah F. Brewster '17, Women's & Gender Studies, Lia P. Camargo '17, Women's & Gender Studies, Gabriela S. Cooper-Vespa '15, Biological Sciences and Chinese Language & Culture, Alexandria M. Faura '17, Women's & Gender Studies, Ogochukwu I. Okoye '17, Women's & Gender Studies and Economics, Arianna Rodriguez '16, Undeclared, Brigitte C. Roper '16, Political Science, Olivia M. Salas '15, Psychology, Sophia R. Temkin '17, Women's & Gender Studies, Erin C. Yang '16, Chemistry
ADVISOR: *Maria Natividad, Women's and Gender Studies*

A Wellesley student once said, “I had been masturbating for about a year [...] but man, did that vibrator change my world”. Have you ever asserted your sexual desire? Are we conditioned to limit expressing our sexual desires and pleasures? Do we value non-heteronormative sexual pleasure? Taking inspiration from an assignment in Introduction to Reproductive Issues, we invited students and faculty to submit anonymously stories about their experiences of sexual pleasure or desire. These stories will put voices to our diverse sexual experiences, normalize conversations about this topic, and encourage us to explore our sexuality. At this speak-out, we will read these stories out loud, thereby transforming these sexual experiences that many of us feel ashamed of into sources of empowerment. Bringing these private experiences safely into public space, we hope everyone in the Wellesley community realizes that they are not alone in their struggles with sexual desire, pleasure, and agency.

Wintersession in Kyoto: An On-Site Study of Japanese Religion and Culture (Panel Discussion)

Science Center 274

Arlevea M. Freeman '15, Economics, Erin J. Hinesley '17, Neuroscience, Jessica Laughlin '15, Computer Science, Alison Z. Nikyar '15, Neuroscience and Women's & Gender Studies, Claire S. Shin '17, Political Science and American Studies

ADVISOR: *T. James Kodera, Religion*

Students of Religion 290: Wintersession in Kyoto will present their respective research papers, which have been the result of academic research combined with collaborative work with students of Japan's Doshisha University. The research topics themselves range from the necessary evolution of Japan's health care system to the treatment of ethnic minorities in modern-day Japan. We hope to present in-depth studies of aspects of Japanese culture, and, together, paint a cohesive image of our time in Japan.

Contested Memories of War and Violence (Short Talks)

Science Center 278

The Maiden's Betrayal: Difficulties in Translation

Katherine P. Jordan '15, Japanese Language & Culture and French

ADVISOR: *Eve Zimmerman, East Asian Languages & Cultures*

Akazome Akiko won the 2010 Akutagawa Prize with her novella, *The Maiden's Betrayal* (Otome no mikkoku), a satirical take on girl culture in Japan. Her story follows a class of Japanese young women who are reading Anne Frank's diary in German and it draws parallels between their lives and that of Anne Frank's. Although I only translated a small portion of the entire work, I encountered the challenge of preserving her distinctive writing style and word choice. In particular, I will discuss her usage of the word *otome* (maiden) to describe these young women and her abnormally simple sentence structure that is reminiscent of a bad translation.

The Harsh Realities of Liberation: Memory of War and Occupation in the Baltic States

Abigail E. Stoltzfus '15, History

ADVISOR: *Nina Tumarkin, History*

This paper explores the significance of war memorials and museums in constructing Soviet and Baltic memory under German and Soviet rule. From the Molotov-Ribbentrop pact of 1939 through World War II until the collapse of the Soviet Union in 1991, the Baltic States were successively occupied by the Soviets and the Germans and then incorporated into the USSR in 1945. My research addresses the impact and controversy associated with Soviet memorials erected to the Red Army as the “liberators” of the Baltic region, along with the subsequent removal and destruction following the states becoming independent. Furthermore, my paper addresses the question of the ways in which the Baltic states' narratives of their experiences under Soviet rule challenges Soviet and Russian memorializations of their role as liberators during World War II. In so doing, my paper attempts to unpack the multiple interpretations of the Baltic population's experiences.

The Red and the Yellow Star: Soviet-Jewish Memory of the Second World War

Luisa von Richthofen, Undeclared

ADVISOR: *Nina Tumarkin, History*

“In Ukraine there are no Jews”, remarked Vassili Grossmann, the world famous author of “Life and Fate” as he was travelling through newly reconquered Crimea. He was sadly accurate. Of the 2,650,000 Jewish citizens estimated to have stayed in the occupied territories after the invasion, only around 110,000 survived. The other ones were killed by the German invaders. Yet, from 1945 on, the Holocaust was virtually non-existent in Soviet public memory and very dimly treated in Soviet historiography. Although suffering of Soviet Jews was acknowledged, it was portrayed as one detail in the larger picture of fascist attacks on the Soviet people.

Why was that so? This is the question I investigated during the last semester under the auspices of Professor Tumarkin. During my research, I reached puzzling conclusions I would like to share.

Fictions & Realities (Short Talks)

Pendleton Hall West 212

Looking through Death's veil: Keats, Mortality, and Medicine

Sarah L. Garvey '15, English

ADVISOR: *Luther Tyler, English*

John Keats prophesied that, “I think I shall be among the English poets after my death,” and strove throughout his short life to produce poetry that would elevate him to the same level as Shakespeare and Milton before him. While he received mostly antagonistic literary reviews during his lifetime, Keats has since become one of the most beloved of the Romantic poets. His poetry, strongly influenced by his youthful passion and the urgency of his quickly deteriorating health, blossomed between the years of 1818-1820, right before his death from tuberculosis at the age of 25. By utilizing primary source documents, I am analyzing his poems within the context of letters he wrote to his close friends and family, which paint a near complete portrait of the inner workings of the poet's mind. My thesis focuses on how his physician's training influenced his poetry, as well as how the circumstances surrounding his life shaped his writing,

his views on life, and his own apparent mortality.

Alice in Wonderland: Dorothy Wordsworth and the Search for Self in Wordsworthian Nature

Maymay Liu '15, English and Economics
ADVISOR: *Daniel Chiasson, English*

Behind every great man is a woman - too often is this sentiment applied to Dorothy Wordsworth, sister, editor, and muse to the celebrated Romantic poet William Wordsworth. Relegation of Dorothy as merely a supporting figure in this way ignores her conscious struggle to engage with William's poetry; her writing, in both prose and poetry forms, reveals a cognizant journey as tangible as movement through physical landscape. During my Ruhlman presentation, I will discuss the details of my thesis, which attempts to trace Dorothy's migrations through her brother's poetical conceptions of nature and explore how she tries to connect with a world that seems innately designed to reject her.

This Ruhlman presentation will be a culmination of research made possible by the generous Schiff Fellowship award.

Two Wellesleys through The Eyes of Katharine Lee Bates

Claire I. Milldrum '15
ADVISOR: *Rebecca Bedell, Art*

The Wellesley Historical Society is a publicly accessible archives and historic home that has preserved the legacy of the Town of Wellesley since the 1920s. This ranges from garments of the late 19th century, to archival photographs of the town at various times, to half of the Esther Oldham Lace Collection, to some of the written record of Katharine Lee Bates. A Wellesley professor that wrote *America the Beautiful*, she bridged the town and gown divide. She is a figure of great importance to the College, as a Class of 1880 graduate and long serving professor of great renown. This Art History Independent Study develops an exhibition on the relationship between the 'Vil and the College through the life of Katharine Lee Bates will be developed and mounted. The presentation will discuss the process of original archival research, object selection, exhibition design and writings of labels.

La Mere Colonisatrice, La Mere Colonise (Mother Colonizer, Mother

Colonized): Writing the Mother in Three Autobiographical Novels of Marguerite Duras

Anne S. Ratnoff '15, Cognitive and Linguistic Sciences and French
ADVISOR: *Catherine Masson, French*

My thesis explores the mother-daughter relationship in three novels by French author Marguerite Duras. These works, the "Sea Wall Cycle," are variations of a story about a young French girl in Indochina and her affair with an older, wealthy Chinese man. The girl's mother, obsessed with becoming rich in the colonies, is financially ruined by the purchase of a farm that can't be cultivated. Ironically, the mother becomes colonized herself, subject to the cruel waves of the ocean that drown her crops. She devolves into madness and violence, especially against her daughter, who is a representation of the author's younger self. Before writing these novels, Duras, under her real name Donnadieu, co-authored *L'Empire Francais*, propaganda commissioned by the French government to promote the exploitation of the French Colonies. Therefore, a post-colonial perspective enlightens a psychoanalytical analysis of the mother-daughter relationship and the blending of truth and literature into auto-fiction.

Regional Diversity & Struggles for Power (Short Talks)

Pendleton Hall East 139

Nation and Nonsense: Shakespeare's Treatment of the Welsh

Morgan E. Moore '15, Medieval/Renaissance Studies
ADVISOR: *Sarah Wall-Randell, English*

With famous lines like "On, on, you noblest English!" and "This blessed plot, this earth, this realm, this England," Shakespeare's plays, especially the histories, are famous for their role in creating and glorifying English national identity. But equally important to an understanding of Shakespeare's canon are minority British identities, and of these the most prevalent and most overlooked are the Welsh. This presentation will focus on Shakespeare's Welsh characters, their roles and presentations, and in focusing on Sir Hugh Evans from *The Merry Wives of Windsor*, will argue that there is a powerful duality of the foreign and familiar, absurdity but simultaneously respectability, embedded in Shakespeare's Welshmen.

The She-Wolf: Margaret of Anjou, Power, and Leadership

Seraphina E. Oney '16, History
ADVISOR: *Valerie Ramseyer, History*

Margaret of Anjou is one of England's most infamous medieval queens. Villified by Shakespeare, Margaret was coined a she-wolf of France like one of her predecessors, Isabella of France. Margaret had the unfortunate luck of being married to a king who was unable to rule. In addition to lacking the militaristic qualities that made his father such a famed ruler, Henry VI also inherited a form of schizophrenia through his Valois ancestors, which incapacitated him as a ruler. He next in line to the throne was Margaret's infant son, Edward. Margaret's unusual upbringing allowed her to step up to head the Lancastrians without hesitation. Margaret led the Lancastrians on behalf of her son against the Yorks during the Wars of the Roses until the defeat of her son at the Battle of Tewkesbury. Margaret's power clearly evolved throughout the various stages of womanhood, and the extent of her power was directly linked to the degree to which she was able to lead the Lancastrians in England.

Catalanismo: Elements of the Catalan Independence Movement

Emily E. Schultz '15, Spanish
ADVISOR: *Carlos Ramos, Spanish*

Catalonia is the wealthiest of Spain's 17 autonomous communities. It has its own language, a long history, and its own parliament and government. Does this mean it should become an independent nation? Within the past few years the Catalan independence movement has intrigued many, myself included, and has become the focus of my senior honors thesis. In my presentation I will discuss my research on the many political, historical, cultural, and social roots of Catalan nationalism. I will also outline how has this nationalist sentiment has changed over time in response to Spain's complicated history of economic crises and political dictatorships.

Unraveling the Contexts of Haruki Murakami

Sophia Vale '17, Japanese Language & Culture and Jessica Yung '17, English
ADVISOR: *Eve Zimmerman, East Asian Languages and Cultures*

Despite their international popularity, the works of Haruki Murakami remain enigmatic. Murakami's short stories and novels are wild, surreal journeys that are, at once, entertaining and full of meaning, even if the meanings are difficult to unpack. In this Ruhlman, we address how Murakami uses his literature to comment on modernity and westernization in Japan, the role of women in his fiction, as well as the complex, philosophical themes that he captures in his texts. We examine his work in the context of Japanese and global history, pop culture, and his uniquely scripted personal life.

Science & Technology

Probing the Microbial Universe In and Around Us (Panel Discussion)

Collins Cinema

Elizabeth M. Exton '17, Biological Sciences, Manjot K. Nagyal '17, Biological Chemistry, Amelia R. McClure '16, Biological Sciences, Michaella F. Montana '16, Biological Chemistry, Serry Park '16, Biological Sciences, Alexa Rodriguez '17, Biological Sciences, Rebecca J. Rubinstein '15, Spanish and Biological Sciences, Amelia R. Winter '15, Biological Sciences
 ADVISOR: *Vanja Klepac-Ceraj, Biological Sciences*

The most influential community on Earth may be the microbial community. Fifteen years of research has demonstrated that these diverse assemblages of bacteria, viruses, fungi and archaea play a critical role in shaping their environment, be it the land, sea or the human body. Nevertheless, the dynamic factors that drive interactions and stability within these communities remain relatively poorly understood. At this panel, the Klepac Ceraj lab will take you on a tour of several microbial communities and their environments ranging from the digestive systems of a milkweed bug and a mouse, marine microbial mats, to the permanently stratified depths of a lake. We will describe how we study these microbial communities and discuss recent findings, future goals, and potential ramifications of our research and the importance of environmental microbiology.

Small Particles with Big Impact: Innovations in Nanotechnology (Panel Discussion)

Pendleton Hall East 339

Amal W. Cheema '17, Political Science, Sara N. Musetti '15, Biological Chemistry, Jeanne J. Xu '15, Chemistry

ADVISOR: *Nolan Flynn, Chemistry*

Nanoscience is an expanding field of scientific research. Within the field, gold nanoparticles are particularly interesting because of their unique physicochemical properties. This panel discusses gold nanoparticles for biomedical and bio-chemical sensing applications. Gold nanoparticles (AuNPs) can be tailored to create a multi-functional nano-vehicle for 'smart' cancer treatment. Our proposed nano-vehicle consists of an iron core for tracking and a gold shell to which we can attach molecules for targeting cancer cells and treating the cancer. We will examine both the construction of these particles and their interactions in physiological systems. In addition, AuNPs can be used for sensing applications, often as thin films on substrates such as glass. For these applications, it is important that thin film integrity is retained over a long period of time. Therefore, we seek to assess the temporal stability and determine the mechanisms of degradation of thin films of AuNPs on glass substrates.

Out of this World (Short Talks)

Pendleton Hall West 117

Compact Quiescent Galaxies in the DEEP2 Redshift Survey

Kirsten N. Blancato '15, Astrophysics
 ADVISOR: *Kim McLeod, Astronomy*

Massive quiescent galaxies challenge the prevailing scenarios of galaxy evolution. These luminous galaxies, colloquially referred to as "red nuggets," have high masses, yet small sizes and little to no evidence of active star formation. Those in the distant (early) Universe are 2 - 5 times smaller than their local counterparts, but the mechanism driving their growth over cosmic time remains an open question whose answer will provide insight into the field of galaxy evolution as a whole. We have used the DEEP2 Redshift Survey in conjunction with archival Hubble Space Telescope imaging to identify and characterize a sample of red nuggets at intermediate distances.

They provide missing links to complete the evolutionary histories of these objects from the early to the local Universe.

Let's Put a Positive Spin on Things: Spin Vector and Model Shape Solution Analysis of the Asteroid (1742) Schaifers

Anna V. Payne '15, Astrophysics and Geosciences
 ADVISOR: *Stephen Slivan, Astronomy*

For an Astronomy 350 research project, I studied the asteroid (1742) Schaifers, a member of the Koronis family of asteroids, to determine its sidereal rotation period, spin vector orientation, and a model shape solution. Families of asteroids are of scientific interest due to their common origins from disruptions of parent bodies resulting from collisions. They are important, therefore, for understanding solar system formation and evolution by taking advantage of family members' common age and dynamical histories. It was previously discovered that the ten largest Koronis members have spin vectors that are clustered, rather than randomly distributed as would be expected from family formation. This result has been qualitatively attributed to YORP thermal torques. My work involved observing (1742) Schaifers and analyzing the data to increase the spin vector sample and aid future modeling of the YORP effect in the solar system.

A Family Divided: A Search for Fast-Rotating Prograde Koronis Family Asteroids

Arden C. Radford '15, Economics and Astronomy
 ADVISOR: *Stephen Slivan, Astronomy*

Asteroids represent some of the oldest clues to solar system formation. Studying the properties of these objects sheds light on the evolution and formation of small rocky bodies. Members of asteroid families are formed together and have similar orbit properties, thus they are of the same age and are subject to similar evolutionary processes. 30 years of study of the spins in the Koronis family gives us approximately 15 spin vectors. I analyzed new data for 4 more Koronis family members: (811) Nahuemia, (1245) Calvinia, (1848) Delvaux, and (2144) Marietta. These data, collected since 2002 using Wellesley's own 24-inch telescope, allow us to use Sidereal Photometric Astrometry analysis to produce possible spin directions and pole solutions. Discover how epoch information from multiple years

allows us to visualize and analyze objects too small and too far away to directly resolve from Earth.

Planet Hunting in the Milky Way

Camille C. Samulski '16, Astrophysics
ADVISOR: *Kim McLeod, Astronomy*

The Milky Way is filled with an unknown number of planets orbiting stars of all different kinds. Exoplanets range from Earth sized to many times larger than Jupiter, and we have set out to try and find new exoplanets as a part of the KELT (Kilodegree Extremely Little Telescope) project. KELT has been active since 2005, seeking out hot Jupiter exoplanets that are eclipsing their host stars. As members of the KELT follow-up team, we use our 24" telescope to collect data on top-secret potential exoplanets. We will present our data and analysis of observed KELT targets, as well as presenting the intricacies of exoplanet systems, some of which may resemble systems much like our own solar system. We will demonstrate the complexity and science behind being a true planet hunter.

Touching the Invisible: Novel Human Computer Interactions (Short Talks)

Science Center E125

Breaking Down Communication Barriers with Visualizations

Joanna A. Bi '15, Computer Science, Sheridan R. Sunier '15, Computer Science and Economics
ADVISOR: *Orit Shaer, Computer Science*

Visualization is a key technique for analyzing and presenting complex scientific information across disciplines. This becomes increasingly important when such data must be presented to decision-makers and to the general public in an easily-understandable way. Combining our interest in the application of computer science to economics and to climate change, we investigate how different interactive visualizations affect non-expert understanding of complex scientific data. In economics, different visualizations can impact the way consumers perceive their own spending habits relative to their peers'. Similarly, in climate change research, the disconnect between experts and non-experts raise important questions about how visualizations can affect the communication of information to the general public. Here, we present two related projects, which focus on designing and developing interactive

visualizations to promote the accessibility of complex information.

An In-Depth Look at the Benefits of Immersion Cues on Spatial 3D Problem Solving

Jasmine N. Davis '17, Media Arts and Sciences, Cassandra L. Hoef '15, Computer Science and Medieval/Renaissance Studies
ADVISOR: *Orit Shaer, Computer Science*

Interactive stereoscopic 3D displays offer the promise to enhance 3D spatial problems solving by leveraging three different immersion cues: binocular parallax, motion parallax, and haptic feedback. However, this potential has not yet been proven empirically. Our goal is to understand which immersion cues contribute to improve 3D spatial problem solving. We present a user study that takes an in-depth look at the effect of immersion cues on 3D spatial problem solving by combining traditional performance and experience measures with brain data.

The 21st Century Toy Box: Understanding the Learning Potential of Technology Toys

Veronica J. Lin '15, Economics and Computer Science
ADVISOR: *Orit Shaer, Computer Science*

Remember that house you built with LEGOs? What if you could add a working doorbell, light, and chimney with just a few more pieces? The latest technology toys can do just that, making any creation come alive. Toys such as littleBits, magnetic modules that snap together to make sophisticated circuits, and KIBO, interactive robots that can be programmed using wooden blocks, are two tangible technologies that offer increased opportunities for young children to engage in playful, exploratory learning while developing computational thinking skills. I've collected data from over 20 hours of user study sessions, robotics workshops, and in-classroom robotics activities to investigate what design factors affect engagement, creativity, and collaboration in computational thinking toys like littleBits and KIBO. In addition, my research offers suggestions for how to best support the use of these toys in various contexts and discusses opportunities for new toys.

To See the Invisible: Application of Google Glass at the Davis Museum

Yi Tong '15, Computer Science, Ruxin Xu '15, Computer Science and Art History
ADVISOR: *Orit Shaer, Computer Science*

With the innovation in technology, wearable devices start to become part of our daily life. Combining our interest in technology and in art, we studied the impact of wearable devices, such as Google Glass, and of augmented reality technology in museums. Furthermore, we investigated how Google Glass can present the invisible information behind the scene to the visitors interactively. In collaboration with the Davis Museum, we worked on a prototype for a Google Glass application in the past year. Using Augmented Reality technology, our application can recognize the artwork that the user is looking at, and invite the user to interact with the artwork through prompts and questions.

Designing Ecosystems (Panel Discussion)

Founders Hall 126

Maria A. Acosta '15, Biological Sciences, Sanam B. Anwar '15, Biological Sciences and Geosciences, Carolyne M. Banks '15, Biological Sciences, Charlotte H. Benishek '16, Environmental Studies, Ilhan A. Esse '16, Biological Sciences, Alda S. Ngo '15, Psychology, Alison E. Patterson '16, Biological Sciences, Geralle N. Powell '16, Biological Sciences, Amanda C. Ruiz '15, Japanese Language & Culture and Biological Sciences, Rachel Seebach '17, Environmental Studies, Ruth Seok '16, Biological Sciences, Heather Smith '16, Biological Sciences, Melaina A. Wright '15, Biological Sciences
ADVISOR: *Kristina Jones, Biological Sciences*

Humans re-design ecosystems all the time, mostly unintentionally, whenever we alter landscapes. In our course, BISC/ES 327: The Biology of Natural and Designed Ecosystems, we seek to understand healthy, resilient natural ecosystems as communities of diverse organisms, and to apply that understanding to the intentional design of ecosystems. We will present a sampling of our final projects, which range from restoration of degraded natural systems to design of indoor ecosystems.

Social Sciences

Do Tariffs Help or Harm? A Look Into American Trade Policy (Panel Discussion)

Founders Hall 126

Michelle D. Abm '15, International Relations-Political Science, Kaitlyn A. Brady '16, Economics, Maria M. Castano '16, Economics, Young-Eun Y. Choi '15, International Relations-Economics, Clio B. Flikkema '17, Russian Area Studies and Economics, Jihelah O. Greenwald '16, Mathematics

ADVISOR: *David Lindauer, Economics*

Since its conception in 1916, the United States International Trade Commission (ITC) has enacted multiple tariffs against unfair trade practices, including the “dumping” of foreign goods in US markets. The ITC claims to administer US trade laws in a fair and objective manner, provide independent analysis, and preserve American interests through remedial trade laws. In our three case studies - Chinese crawfish tail meat (1997), persulfates from China (1997), and certain South Korean large residential washers (2013) - we examine case background, methodology, and even politics to determine whether the tariffs have helped mitigate unfair trade. Economic analysis and research ranging from government documents to direct exchanges with people involved lead us to a unanimous determination. Come hear our verdict during the presentation.

Mellon Mays Research Imperatives II (Panel Discussion)

Jewett Arts Center 450

Fiona J. Almeida, Senior Davis Scholar, Anthropology and Africana Studies, Rachel P. Arrey '16, Religion and Political Science, Nicole L. Blansett '15, Economics, Diana Lee '15, Geosciences

ADVISOR: *Tracey Cameron, Office of Intercultural Education*

The Intent to Parent: U.S. Law and Surrogacy

Nicole Blansett '15, Sociology and Economics
ADVISOR: *Rosanna Hertz, Women's & Gender Studies*

Despite its long history, surrogacy occupies a grey area in U.S. law. Some states ban the practice, while others choose to regulate it. Laws vary by state and frequently fail to define legal relationships to the child.

Existing legal uncertainty is dangerous for both parents and children. This talk will examine existing legal precedent and make a case for the application of relational contract theory in setting state surrogacy policies. It will also advocate a shift from parental rights discourse to parental responsibilities. Although it is impossible to eliminate uncertainty from surrogacy agreements, clearer standards and stronger regulation will create a safer and friendlier legal space for all involved. As the ways in which we construct families continue to evolve, efficient policy must not only answer the question of who is a parent, but also if there is room for more than two.

Do You Breathe What I Breathe?

Diana Lee '15, Geosciences

ADVISOR: *Dan Brabander, Geosciences*

In Shanghai, public knowledge about detrimental health effects of air pollution led to a rise in a range of commercial air filter models on the consumer market. There have not been previous studies that evaluate the range of particulate matter that these air-filtering devices trap. This study looks into the composition of PM trapped by commercial air filters. After gathering PM trapped by air filters, X-ray fluorescence was used to determine the bulk metals. Dust wipe samples were collected from the household to determine types of particulates that personal air filtering devices did not trap. Determining the composition of PM on air filters compared with PM in dust within the household provides insight into the effectiveness of commercial air filters and sources of PM. Although various air filtration systems are available, the urban poor cannot afford these systems and are subject to the full effects of PM.

Explorers of Existence: Tibetan Buddhist Nuns and Identity

Rachel P. Arrey '16, Religion and Political Science

ADVISOR: *T. James Kodera*

For generations, Tibetan Buddhist nuns have preserved their lifestyle and heritage within a continually shifting political, economic, and social context. Today, as opportunities for women continue to grow, how do Tibetan Buddhist nuns construct identity? This presentation explores how elements of Buddhist philosophy and practice, and the role of tradition and modernity contribute to this construction. The influence of age,

gender, and ethnicity are also explored. In my research, I focus specifically on the experiences of Tibetan Buddhist nuns living in the Dharamsala area of Himachal Pradesh, India.

Respect and Empowerment for Siddi Girls and Women

Fiona J. Almeida, Senior Davis Scholar, Anthropology and Africana Studies

ADVISOR: *Pashington Obeng, Africana Studies*

In many parts of rural India, menstruation can be interpreted as an abnormal physiological occurrence. During the summer of 2013, I had the opportunity to collaborate with young Siddi girls and women in order to learn how reproductive health is regarded within their community in Karnataka, India. My interactions with them helped me understand some of the challenges they face because of the cultural stigma attached to menstruation and their limited understanding about puberty, and reproductive health. Armed with this information and using the lens of peace and social justice, I returned to Karnataka in the summer of 2014 to implement a project that will enable the Siddi females to gain access to resources that may equip them to take control of their bodies and reproductive health. The goal of the project included the making of reusable sanitary pads, and education about puberty and menstruation. Another component of the project was to recruit and train Siddi girls and women to learn how to sew and market the reusable pads as a sustainable small business enterprise. Ultimately, my research project was aimed at helping the Siddi girls and women to enhance their future and financial independence while, contributing to their development and that of their communities.

Perspectives from The Freedom Project V: Development and Freedom (Panel Discussion)

Science Center 104

Ethical and Practical Problems with Development Expertise

So Yeon Jeong '15, International Relations-History

ADVISOR: *Thomas Cushman, Sociology*

At Wellesley College, the motto of making a difference in the world often takes the form of helping others, whether individuals or nations, in programs of development. This

presentation presents some of the research on the ethical and practical problems that plague the trope of “development.” Results seldom accurately reflect the best intentions and expertise knowledge of development experts. The presentation also seeks to explore where spaces for acknowledgement and improvement of these problems can occur without losing the central motive of making a difference in the world.

A Case for Property Rights in Venezuela: A Human Development Issue

Emma J. King '18, Undeclared
ADVISOR: *Thomas Cushman, Sociology*

This presentation argues a strong case for the property rights in Venezuela, a country noted to be insufficient with regard to such rights by the Property Rights Index. Well-defined individual property rights are a fundamental tenet of libertarian philosophy, and I explain how this libertarian principle might be effective in increasing social and economic welfare in Venezuela. The presentation outlines the negative economic implications of the current system in Venezuela and examines specific government policies to ameliorate this problem by the formal privatization of one of the most important forms of property: land.

Bridging the Gap (Short Talks) Pendleton Hall East 239

The United States and Native Americans: Can the Nation-to-Nation Relationship Give Native Youth Equal Education Opportunities?

Ahilya H. Chawla '15, Political Science
ADVISOR: *Christopher Candland, Political Science*

As the Native American Outreach intern at the White House the past 5 months, the presenter learned firsthand the systemic barriers educational achievement Native youth face. Native children are far more likely than their non-Native peers to grow up in poverty, to suffer from severe health problems, and to face obstacles to educational opportunity. The United States shares a unique trust responsibility with Indian tribes built upon treaties. Because of this relationship, the Obama administration is working to find solutions to pressing education problems confronting Native Youth. This presentation takes viewers through several historical cases,

successful and unsuccessful, outlining how educational opportunities have been given to Native youth through federal government intervention. Focusing on the work of both Republican and Democratic administrations, this presentation will draw upon these cases and discuss alternative ways advancement can be propelled for Native Youth. The talk will be drawn upon both the presenter's research and firsthand experience working with Native Youth.

Do the Liberal Arts create a Better Learning Environment for the Sciences? A Longitudinal Study of Engagement of STEM Majors at Liberal Arts Colleges

Alexandra L. Day '15, Physics
ADVISOR: *Adele Wolfson, Chemistry*

This presentation describes work to identify trends in STEM education at highly-selective liberal arts colleges in US Northeast and investigate to what extent a liberal arts curriculum can help students' understanding of their scientific studies. Using data from a 4-year longitudinal study of STEM majors at various institutions, we identified patterns in students' coursework between the liberal arts and sciences and correlated this with student engagement and success outcomes.

Income Inequality, Financial Aid, and the American System of Higher Education

Katherine E. Di Lucido '15, Economics
ADVISOR: *Phillip Levine, Economics*

In recent years, a growing number of researchers have suggested that rising income inequality in the United States has created a “hollowing-out” of the middle class, largely as a result of increasing wealth accumulation at the very top. Eager to combat the perception that they contribute to this inequality, many elite private colleges and universities have sought to attract greater socioeconomic diversity. But such diversity poses many challenges to traditional approaches to need- and merit-based financial aid, tuition, and campus investment.

In particular, I will argue in this presentation that there has been an increase in demand for high-income students, whose families often subsidize the enrollment of low- and middle-income students. Implications of this changing strategy include the rise of an “educational arms race in which

institutions compete to enroll the best (and, at times, wealthiest) students by funding non-academic services (e.g. luxury dorms)” and the risk of relying on such policies to establish socioeconomic diversity.

Politics of Sexuality (Panel Discussion) Pendleton Hall West 116

Nisrine Abdou '15, English, Aline W. Mitsuzawa '18, Undeclared, Budnampet Ramanudom '18, Undeclared, Sofie M. Werthan '18, Undeclared
ADVISOR: *Sima Shakhari, Women's & Gender Studies*

This Ruhlman presentation will be based on the Women's and Gender studies class “Politics of Sexuality.” We studied and analyzed the sociopolitical and cultural manifestations of sexuality with a transnational lens. Our research topics varied in both geographical location and scope. Sofie researched divisions within the LGBTQ community at Wellesley College based on race and gender. Nisrine talked about the stereotype behind the hyper-sexualized black body as conveyed and perpetuated by white mainstream media. Pet analyzed the performance of sexuality and gender in Thailand. Aline examined the direct relationship between visibility and violence against queer people in Brazil. We will each discuss our respective areas of research, and their juxtaposition and interplay will demonstrate the key role of sexuality when it comes to understanding local and global politics, institutional policies, and cultural norms.

Humanities

The Bicyclist and Other Stories: Adapting the Narratives and Interfaces of Comics and Graphic Novels for the Web (Exhibition)

Jewett Arts Center Art Gallery

Julia V. Makivic '15, Media Arts and Sciences
ADVISOR: *David Olsen, Art*

My thesis focuses on how the narrative structure and interfaces of comics and other graphic stories can be adapted to take the advantage of the web platform. My focus has mostly been directed towards experimenting with the narrative structure of the story, from applying a non-sequential and fragmented structure to a print comic strip to creating a graphic narrative with hypertext. My focus for this semester will be on developing the interface and how the visual presentation of a graphic narrative can be changed to better fit the web platform. Currently, I have been experimenting with the narrative structure and visual presentation of “The Bicyclist”, a graphic story about a student who accidentally commits a hit and run. This story has already gone through several iterations. I have also created “26” an interactive graphic narrative about the passengers on a bus and I hope to create more stories throughout the semester.

Scenes from the Bard: The Wellesley College Shakespeare Society Presents The Tempest and Hamlet (Interactive Teaching Presentation)

Ruth Nagel Jones Theatre

Erin A. Nealer '15, International Relations-Economics, Mara Elissa Palma '15, Political Science and Theatre Studies, Katherine L. Suchyta '15, Theatre Studies
ADVISOR: *Marta Rainer, Theatre Studies*

Missed either of The Wellesley College Shakespeare Society productions this year? Fear not! Join them as they present scenes from this year’s productions, The Tempest and Hamlet both directed by Katherine Suchyta. A talk-back will follow with the director and various members of the casts and technical artists on topics ranging from student-run productions, gender and performance, Shakespeare in the modern

day, and the history of the Shakespeare Society.

Self-Producing an Album of Unintended Soliloquies: A Pamela Daniels Fellow Project (Long Performance)

Jewett Auditorium

Audrey A. Tran '15, Biological Chemistry
ADVISOR: *Martin Brody, Music*

Songwriting is my preferred medium of self-expression. In these formative college years, I have written a motley collection of songs, in which I’ve attempted to capture some of the feelings, worries, and ideals of a modern twenty-something who has every resource at her disposal, but nothing yet to call her own. Previously, these songs existed were trapped, rather exclusively in my mind or within the intimate spaces of Cambridge coffee shops. Now, with the generous funding of the Pamela Daniels Fellowship, I seek to learn what it takes to record and produce a full-length album. In this masterclass-inspired presentation, I will perform selected original works from my upcoming album, Unintended Soliloquies, and will demonstrate how I have chosen to arrange, record, structure, and master these songs. My goal is to produce a physical recording that matches how I’ve imagined these songs in countless real and imagined performances.

A Closer Look at Anne Whitney, her Sculpture, and Nineteenth-Century Scholarship (On Location Presentation)

Davis Museum

Kathryn M. Cooperman '15, Art History and Italian Studies
ADVISOR: *Jacqueline Musacchio, Art*

My independent study research this semester focuses on nineteenth-century sculptor Anne Whitney. Wellesley College has a close connection with Whitney, as it is home to eight of Whitney’s sculptures, and to four thousand of her letters, which encapsulate her life and career at home and abroad in Europe. This semester, I am utilizing Whitney’s letters and other thematic sources to produce catalog entries for these eight sculptures. My research will culminate in a virtual exhibition on “Dear Home,” Wellesley’s online database dedicated to Whitney. Additionally, in order to understand nineteenth-century sculpture

methods on a deeper level, I am undertaking studio work of my own, guided by Professor Carlos Dorrien, in the mediums of clay, plaster, marble, and bronze. I invite you to join me in the Davis Museum to examine some of Whitney’s works first-hand and to explore the nexus between the art studio and art-historical scholarship.

Cultural Memory on the Global Stage: Mapping Ties to Eastern Europe in the Work of Latin American Writers (Panel Discussion)

Science Center 396

Victoria I. Angelova '18, Undeclared, Rebecca A. Hosey '15, Spanish, Mayanka H. Kumar '16, Psychology and Spanish, Molly S. Petrey '15, English and Spanish, Nathalie Rivas '15, Biological Chemistry, Maya C. Robles-Wong '15, Spanish
ADVISOR: *Evelina Guzauskyste, Spanish*

In a world where physical borders are dissipating due to technological advances, and the flow of people, merchandise, and capital is swift and frequent, concepts such as “cultural identity,” “displacement,” and “memory” have become increasingly nuanced and contested. Our class has been addressing these concepts in the context of Latin American writers and other public figures who exhibit ties, whether intellectual, family, or travel, to the countries we think of as Eastern or Central Europe. The list includes the Chilean Nobel Prize winner, Pablo Neruda, who traveled about wrote about Eastern Europe; the beloved Argentine writer of the fantastic, Julio Cortazar whose lover and translator was the Lithuanian Ugne Karvelis; Clarice Lispector consider by many the best modern Brazilian writer whose Jewish parents immigrated from Ukraine; and the Brazilian president Delma Rousseff whose father is Bulgarian. How do these intellectuals negotiate their cultural memory in the light of the constantly changing political and social contexts? In their presentation, the students will showcase a digital mapping project that visualizes the precarious yet strongly suggestive relationships between geography, belonging, and writing.

Science & Technology

From Birds to Nanoparticles: MR Studies at Wellesley (Panel Discussion)

Founders Hall 120

Tamara Biary '15, Chemistry, Alexandra M Dunn '15, Chemistry, Susan Haney, Chemistry Department, Zi Wei Liao '15, Biological Chemistry, Stela P. Petkova '16, Neuroscience, Dana Williams '15, Psychology
 ADVISOR: *Nancy Kolodny, Chemistry, rita*

Functional MRI in Exploration of Songbird Learning and Memory (Stela Petkova)

Songbirds, like zebra finches (*Taeniopgia guttata*), are an excellent model for human language acquisition, and for studying mechanisms underlying learning and memory. Songbirds share many developmental and anatomical traits with humans, such as similar process of vocal acquisition and analogous auditory processing regions. Functional magnetic resonance imaging (fMRI) can be used a noninvasive technique to collect real-time, whole-brain data. In this project, fMRI is used to investigate brain activation due to an auditory stimulus such as familiar or unfamiliar song. This data shows relatively high regional specificity and high temporal specificity. Because fMRI is noninvasive, we are able to introduce multiple stimuli and observe brain activation at various time points in one bird's life. Our current work is centered on validating the auditory delivery of natural sounding stimuli and statistical analytical methods. We aim to develop these methods in order to acquire high-quality neuronal data.

Exploring Silica-coated Iron Oxide Nanoparticles as A Drug Delivery System for Pancreatic Cancer (Alice Liao and Susan Haney)

Due to their small size, nanoparticles (NPs) are a suitable platform for building the next-generation targeted therapy for cancer. The high surface-to-volume ratio and well-studied surface chemistry of NPs allow for efficient loading of treatment and targeting moieties. This maximizes drug delivery and ensures high tumor specificity, while sparing healthy tissue. Superparamagnetic iron oxide (SPIO) NPs, a type of magnetic resonance (MR) contrast agent, combine the small size

of nanomaterials with the benefits of MR imaging to provide a non-invasive method for tracking NPs inside the human body. Coating the nanoparticles with silica and polyethylene glycol (PEG) improves their biocompatibility and stability. Previous efforts successfully synthesized silica-coated SPIO NPs with a diameter of approximately 50 nm and a shell thickness of 10-20 nm. Current studies focus on exploring how coatings affect the magnetic properties of the NPs, with the goal of optimizing their performance as MRI contrast agents. Bioimaging methods are being optimized to quantify cellular particle uptake after the addition of a cancer-targeting moiety, a monoclonal antibody, to the particle surface.

Assessment of a Mouse Model for Schizophrenia (Alexandra Dunn, Tamara Biary, and Dana Williams)

The World Health Organization (2013) describes schizophrenia (SZ) as a chronic brain disorder that affects 24 million people worldwide, only about half of whom receive treatment. SZ is characterized by positive symptoms such as hallucinations, and negative symptoms such as memory, cognitive, and social deficits. Existing SZ medications only adequately address positive symptoms. Consequently, the development of new mouse models from which novel medication can be created is an important research field. Schizophrenia's specific cause remains unknown, but it is widely accepted that genetic and epigenetic causes are at play. To address these causes we use mice bred with a mutation that knocks out a gene (*GCP11*) responsible for producing the neurotransmitter glutamate, which is found in altered levels in humans with SZ. We aggravate the model further by introducing a virus to neonatal mice that affects gene expression, simulating epigenetic dysregulation. We analyze the effects of the model on mouse brain anatomy and function using three magnetic resonance (MR) techniques: MR imaging, looking at brain anatomy, MR spectroscopy, assessing levels of brain chemicals, and diffusion tensor imaging (DTI), analyzing brain region connectivity and white matter structure; these data are collected once a week between postnatal days (PND) 28 and 64. Social withdrawal is investigated using a behavior paradigm between PND 114 and 117. Future work involves more data

collection and developing a new behavioral test to analyze memory.

Investigating Structures and Functions of Histone-Derived Antimicrobial Peptides (Panel Discussion)

Dania M. Figueroa '17, Biological Chemistry, Lauren C. Heller '17, Mathematics, Maria A. LaBouyer '15, Biological Sciences and Art History, Sung Hyun Lee '16, Chemistry, Sukin Sim '16, Chemistry and Mathematics, Lei Wei '16, Biological Chemistry, Amy Yuan '16, Chemistry
 ADVISOR: *Donald Elmore, Chemistry*

The Elmore lab is interested in understanding the interactions between lipids and proteins. One set of projects in the lab consider histone-derived antimicrobial peptides (HDAPs), which have been shown to selectively kill bacterial cells and thus show potential as alternatives to conventional antibiotics. These projects modify peptide structures, explore the mechanisms of action, and test peptides against different bacterial strains. The interaction between the lipid membrane and these proteins is studied using molecular dynamics simulations. Another area of study is the characterization of lipid binding proteins that have arisen from work with model plant species *Arabidopsis thaliana* and *Physcomitrella patens* in the Peterman lab. Panel members will discuss the various computational and experimental methods they use to address these questions and the insights their approaches have provided to these systems.

Earth, Wind, & Drinking Water (Short Talks)

Pendleton Hall West 117

Mapping and Geochronology of the Contact Zone of Paleozoic Cape Ann Pluton, Salem Neck, MA

Michaela A. Fendrock '15, Geosciences and Astronomy
 ADVISOR: *Margaret Thompson, rita*

The Cape Ann pluton is a Paleozoic alkalic intrusion post-dating 630-580 Ma Avalonian magmatism in SE New England. Such alkalic compositions are associated with intra-plate magmatic systems produced when hot, mantle-derived magmas invade and melt continental crust. This study investigates whether apparently co-genetic mafic and felsic rocks on Salem Neck, MA in the contact zone of the Cape

Ann pluton could represent this type of situation. Detailed mapping indicates more complex field relationships than previously published, revealing a NE-SW trending contact between gabbro-diorite and pillowed complex units. CA-TIMS analyses from 4 zircons separated from nepheline syenite in the pillowed complex give a weighted mean $^{206}\text{Pb}/^{238}\text{U}$ date of 424.70 ± 0.12 Ma, very slightly younger than other dated granites farther north in the pluton. The current uncertainties are orders of magnitude more precise than the previously available upper concordia intercept date of 450 ± 25 Ma obtained more than 40 years ago. The new results further clarify a middle Silurian age for the Cape Ann suite.

Addition of Activated Carbon to Sand Filters to Remove Caffeine from Drinking Water

Sarah A. May '17, Anthropology
ADVISOR: *Monica Higgins, Environmental Studies*

Pharmaceuticals and personal care products are found in US streams and rivers in low concentrations, and are thus present in the water humans divert and treat before use as drinking water. Caffeine is one organic compound that enters drinking water treatment plants in relatively high concentrations. We tested whether the addition of activated carbon media to sand filters would improve the removal of caffeine from drinking water. Chromatography columns were used as a laboratory-scale model for the slow sand filters that are found in drinking water plants. If the addition of sorbents like activated carbon to sand filters is effective at removing some pharmaceuticals and personal care products, some treatment plants may be able to avoid high cost processes including membrane filtration and advanced oxidation.

Phosphate and Nitrate Availability Across the Temperate North Atlantic in Correlation with Primary Production

Alison E. Patterson '16, Biological Sciences
ADVISOR: *Martina Koniger, Biological Sciences*

Primary production, the rate at which energy is converted by phytoplankton, relies on nutrient availability and sunlight. Chlorophyll-a, used as a proxy for primary productivity, was studied in parallel with nitrate and phosphate concentrations to determine if there was a correlation between nutrient concentrations and

primary productivity across the North Atlantic Ocean in June. We hypothesized that with increasing distance from shore, where runoff is a large contributor to the nutrient availability in the oceans, nutrient concentrations would decrease, and thus chl-a would decrease. Our data showed that chl-a and nutrient concentrations were not only influenced by how closely samples were taken to land, but also by ocean depth and warm core rings. Therefore, many factors influence primary production.

Navigating the Tree of Life (Short Talks)

Pendleton Hall East 239

Beyond Prosthetics: The First Steps towards Identifying Key Regulators of Limb Regeneration

Jacquelyn Chou '15, Biological Sciences
ADVISOR: *Yuichiro Suzuki, Biological Sciences*

Despite the advances in prosthetic and robotic alternatives to limb loss, little progress has made in human limb regenerative therapy. While mammals have the ability to heal after an amputation, most are unable to form a blastema. Currently, the genes needed for blastema formation are not known, but by examining the genes used during *Tribolium castaneum* beetle regeneration, these potential factors can begin to be identified. Knocking down the expression of enhancer of zeste and polycomb led to prolonged maintenance of blastema after *Tribolium* larval legs were ablated. Studies are currently underway to determine which blastema-specific genes are turned on or off in these structures. Once the genes necessary for forming a blastema are identified, it may one day be possible to turn on these blastema-inducer genes in humans and promote human limb regeneration.

Computational Prediction a Novel Mitochondrial Pathway in *S. cerevisiae*

Alyssa C. Ferris '16, Biological Chemistry
ADVISOR: *Yuichiro Suzuki, Biological Sciences*

Identifying gene pathways in vivo systems is an arduous process, which can be expedited by using computational techniques to predict potential pathways. The purpose of this project was to predict novel mitochondrial gene pathways using sequence comparison and microarray data. After compiling a comprehensive list of mitochondria related proteins in *S.*

cerevisiae, the DNA sequences for these genes were compared across a variety of fungal species and model organisms. Hierarchical clustering separated the genes into seven subgroups with varying degrees of sequence conservation. For the least conserved genes, microarray data was taken from various conditions that impact metabolic function, and genes that were coexpressed in many conditions were predicted to be in the same genetic pathway. One of the largest predicted pathways consists of fourteen genes which involved in mitophagy signaling and was selected for further in vivo analysis.

Responses to Color and Luminance in Macaque Monkeys and Humans

Monica A. Gates '15, Neuroscience
ADVISOR: *Bevil Conway, Neuroscience*

Color vision depends upon three classes of retinal photoreceptors, whose activities are compared at multiple neural stages to compute the brain's representation of color. We recorded from V4/Posterior Inferior Temporal Cortex in fixating monkeys, a mid-tier stage containing color-selective cells. Cell responses to 45 hues at three luminance levels (low, equiluminant, and high, relative to the adapting background) were analyzed. We test the hypothesis that these neurons are correlated with color perception by measuring color tuning as a function of luminance changes. One subtle color change introduced by modulating luminance is the Bezold-Brücke hue shift (a light appearing green at high luminance requires more long-wavelength power to appear the same green at low luminance). We find that tuning shifts consistent with the Bezold-Brücke hue shift are found in many glob cells. We replicate this experiment psychophysically in humans to show the extent to which glob cells are correlated with perception.

How Does Food Stress during Early Development Affect the Performance of Adult Honey Bees?

Anne H. Shen '17, Biological Sciences
ADVISOR: *Heather Mattila, Biological Sciences*

Honey bee (*Apis mellifera*) pollination generates billions of dollars for the global economy, but there are threats to their contribution to agricultural production. Habitat destruction and single-crop agriculture limit the richness of pollen, the primary source of protein, vitamins, and minerals for bees. Adult bees consume

pollen to produce food for their young, but larvae become undernourished during periods of pollen limitation. To determine the effects of larval undernourishment on adult behavior, we divided colonies so that they produced either pollen-limited or abundantly supplied young. When focal larvae became adults, they were weighed, individually tagged, and introduced into a single colony, where we monitored their foraging behavior. Compared to control bees, we expect adults from pollen-stressed colonies to perform poorly during foraging, recruitment, and as they orient to their homes. Such underperforming bees would likely exacerbate the cycle of nutritional stress experienced by colonies as they forage in their habitat.

Protecting our Privacy (Short Talks)

Pendleton Hall West 212

Our Bodies, Our [Quantified] Selves

Lia V. Gallitano '15, Sociology
 ADVISOR: *Markella Rutherford, Sociology*

At the intersection of bodies and technology lies quantified self wearable technology. Part of the movement that bills itself as “self improvement through numbers,” this self-tracking tech is one of the hottest consumer trends of the year, with growing cultural presence. I analyze this technology through three lenses: first, as a method of consumerist reenchantment; second, as part of the modern project of self actualization through therapeutic methods; and third, as a space for negotiation between utopian dreams and dystopian fears. Through this analysis, I interpret what quantified self wearable technology is as a cultural object, and deepen understanding of the relationship between technology, capitalism, and the self.

Privacy Implications of New York City's Stop-and-Frisk Data

Veronica L. Manfredi, Senior Davis Scholar, Computer Science
 ADVISOR: *Darakshsh Mir, Computer Science*

This presentation explores the privacy implications and risks associated with New York City's stop-and-frisk data release. It examines the potential for re-identification of this dataset and proposes a way to privately model the data using differential privacy techniques.

Fitbit User Study: Privacy Concerns in Mobile Fitness Technology

Cali E. Stenson '17, Computer Science
 ADVISOR: *Darakshsh Mir, Computer Science*

The use of wearable technologies has taken off and one of the newest gadgets is the Fitbit. Fitbits are pedometers that either clip on your clothes or are worn around your wrist. They connect to your phone and computer where all of your steps get recorded and displayed as graphs on the app. My research studies the privacy preferences of Fitbit users as their fitness data is collected by a Fitbit and displayed on the Fitbit app, with the potential of sharing it with other Fitbit users. My study was conducted over the course of two months with twenty-one interviews of fitbit users. The interviews asked questions about a user's satisfaction with their fitbit, frequency of use, and attention to privacy settings. The goal in this research is to look for a correlation between a users satisfaction with fitbit and their privacy concern.

Cracking the Hackers: an Inside Look at the Effects of Security Leaks

Sonali T. Sastry '15, Computer Science
 ADVISOR: *Panagiotis Metaxas, Computer Science*

Computer Security is an increasingly relevant topic, with attacks on large companies like Sony, Target and Apple frequently making headline news. The task of protecting computer systems falls within the realm of computer science; but the effects of an attack reach countless other disciplines and impact millions of people. With the frequency of such attacks increasing, it is important to consider what effects such attacks have on society and what people can do to prevent their personal data from being compromised. Through data visualization, previous attacks can help reveal certain trends in cyber security and raise awareness to the importance of preventing more large-scale attacks.

Social Sciences

Global Social Protection in Latin America: Exploring Health Care Options for People on the Move (Panel Discussion)

Founders Hall 126

Amy A. Isabelle '17, Sociology, Leah R. Kaplan '17, Sociology, Denesse Salto '17, Economics
 ADVISOR: *Peggy Levitt, Sociology*

As the transnational movement of people, goods, and services becomes more common, it is increasingly important to understand what kinds of social protections exist for migrants and their families, and specifically how people access and pay for health care. Our group explored the availability of healthcare resources for immigrants from two countries: Mexico and Peru. Amy Isabelle examined binational health insurance programs in the United States and Mexico and the ways in which such programs provide maternal and child health care. Leah Kaplan compared binational health insurance programs between California and Texas and Mexico and examined how these programs might affect binational health on a larger scale. Denesse Salto set out to investigate what, if any, healthcare resources and support networks do Peruvian expatriates have access to in the US, from government agencies in Peru, and from supranational organizations.

Mellon Mays Research Imperatives I (Panel Discussion)

Jewett Arts Center 450

Bernice Y. Chan '16, Ethnic Studies, Cassandra Flores-Montano '16, Women's & Gender Studies, Christiana T. Joseph '16, Anthropology and Religion, Grace Y. Park '16, Political Science
 ADVISOR: *Tracey Cameron, Office of Intercultural Education*

“It made me feel like I had a support system even though I felt alone in that moment“: Exploring the Ways Women of Color Cultivate Online Social Networks to Survive and Thrive in the Real World

Bernice Y. Chan '16, Ethnic Studies and Education Studies
 ADVISOR: *Linda Charmaraman, Wellesley Centers for Women; Kenzo Sung, Education Department*

Social media use is an undeniable part of young people's lives today. How women of color engage in and use social media sites like Facebook, Tumblr, and Twitter, is not focused on enough in prior research studies. Through the online Media and Identity Study, we investigate how social media use affects sense of self. We surveyed over 2000 people nationwide and conducted 34 follow-up interviews, focusing specifically on women of color. Using the interview data, I investigate how women of color utilize social media sites like Facebook for social and psychological support, and how they work to create virtual safe spaces around their racial/ethnic and gender identities.

Religion and Race in Mental Health: College Students Speak Up

Christiana T. Joseph '16, Anthropology
ADVISOR: *Justin Armstrong, Writing Program*

The prevailing attitudes about mental health and mental illness among current college students stem from a multiplicity of cultural associations including ethnic, racial, religious and spiritual traditions. Previous research on student perceptions of mental health, while valuable, have had limited insight on how students, and specifically those of racial, ethnic, religious, or spiritual minorities, understood and approached the idea of seeking mental health care. My current research has given a voice to students' personal opinions and experiences through document and survey analysis, interviews and a questionnaire. Students have vastly different experiences regarding how their community members would respond to mental health issues and an individual's desire to seek mental health counseling and treatment. Students have their own views on how socially acceptable it is to speak about these issues. Taking these students' views into account will help institutional and organizational resources better address students' mental health needs.

United We Stand: An Examination of Race Relations in American Political Protests

Grace Park '16, American Studies and Political Science
ADVISOR: *Miya Woolfalk, Political Science*

Politics in America are more than Black and White; they involve and affect a myriad of races within and beyond that binary. I will examine the theoretical body of knowledge that has traditionally explained

the relationship of minorities in the United States, with an emphasis on Blacks, Latinos, and Asians. Then I will test the validity of those theories in understanding the interracial involvement of the current #BlackLivesMatter movement and other similar historical anti-racism protests.

Women and the Brown Berets

Cassandra Flores-Montano '16, Women's and Gender Studies
ADVISOR: *Irene Mata, Women's and Gender Studies*

This inquiry explores the question of gender in the Brown Berets during the civil rights movement from the late 1960s to the early 1970s. The Brown Berets are a paramilitary Chicano/Mexican organization that played a significant role in the Chicano Movement. As they grew, they adopted a sense of cultural nationalism that centered on the Chicano male as the root of activism and power, leading to the erasure of work by Chicana women. By using Chicana feminist theory to frame my research, I am working to understand the division of labor within the organization. I am also examining the role that state and federal intervention played in the growth of sexism in the organization. By crafting this proposal, I am learning what research needs to be done in order to fill in gaps of knowledge of the Brown Berets.

Perspectives from The Freedom Project II: The Regulation of Sexual Behavior (Panel Discussion)

Science Center 277

The Legalization of Prostitution in Germany: Predictions and Outcomes in Relation to Sex Trafficking

Ianka Bhatia '18, Undeclared, Ellie D. Neustein '18, Undeclared
ADVISOR: *Thomas Cushman, Sociology*

Our presentation examines the effects of the legalization of prostitution in Germany. Generally, libertarian theories suggest that legalization of goods and services should undercut black markets, allowing people to pursue safer methods of solicitation. This perspective has been a centerpiece of libertarian thinking on the legalization of prostitution. Our research examines recent studies on the legalization of prostitution in Germany, which indicate an increase in black market sex trafficking, rather than the predicted decrease. This trend is may

be indicative of more general patterns in other European countries and we discuss the policy implications of our findings.

Pedophilia, Social Ostracism, and Mental Health

Michelle Lu '18, Undeclared, Budnampet Ramanudom '18, Undeclared
ADVISOR: *Thomas Cushman, Sociology*

The criminalization and social ostracism of pedophilia discourage otherwise law-abiding citizens with such disorders to come forward and seek help. For instance, all pedophiles are presumed to be child molesters, which often is not the case. The resources available to those who have pedophilic tendencies are scarce and often these people may live in fear of social and legal ramifications. Since pedophiles do not have the same protections under the law as other people who suffer from mental disorders, they stand to lose their jobs, friends, and family. Many times, these fears can lead to depression, suicide, and if untreated, can make it more likely for these people to act on their urges. We will analyze the evolving history and cultural context of pedophilia and consider the arguments for and against existing policies, and explore new methods of de-stigmatizing these disorders.

Transnational Feminism (Panel Discussion)

Science Center 270

Jacqueline Elise '16, Women's & Gender Studies, Elizabeth S. Feldstein '15, Political Science, Elizabeth F. Harper '15, American Studies, Mariah S. Philips '15, Peace and Justice Studies, Leigh D. Pinkston '15, Psychology, Alyson B. Randall '16, Psychology
ADVISOR: *Jennifer Musto, Women's and Gender Studies*

This transnational feminisms panel examines key feminist concerns and debates: feminist epistemology, issues of representation, agency and subjectivity, capitalism, patriarchy, post-colonialism and nationalism, globalization, development, migration, and incarceration. These topics will be explored by the students who conducted research projects while enrolled in the transnational feminisms Fall 2014 course. Specific research topics include: politics of representation, visual pedagogies, and post-9/11 institutional memory, the intersections of law, sexual justice, and higher education, multinational corporations and neo-colonialism, the War on Drugs (an analysis of its history, impact,

and alternatives), an examination of western feminism as it intersects with statehood and motherhood.

A Flight of Research at Wellesley (Short Talks)
Pendleton Hall West 116

Treating Closed Angle Glaucoma in Rural China: Engineering a Low-Cost Iridotomy Solution

Dina Aouani '16, Mathematics and French, Samantha Chin '17, Economics
ADVISOR: *Amy Banzaert, Engineering*

In rural China, 250,000 people lose their eyesight due to glaucoma and few of the 20,000 ophthalmic clinics in China can afford the US\$70,000 laser-based system used to treat the disease. This system, called laser iridotomy, utilizes a laser to create two tiny holes in the patient's iris underneath the upper eyelid, which equilibrate the pressure between the iris and the cornea, preventing damage to the retina and ultimately blindness. A similar phenomenon is observable in the developing world. It is to remedy to the lack of affordable lasers in those countries that team is currently developing a technique to replace the expensive laser source in the traditional laser iridotomy system with sunlight. We have designed and fabricated the collection optics, fiber optic interface, and modifications to an equatorial mount to use a Questar telescope to track the sun. The goal was a proof of concept to determine that we could collect and image one watt of visible light into the fiber optic, sufficient for ophthalmic surgery. Nearly two watts were measured. We are now developing a two axis closed-loop system to track the sun, using stepper motors and an Arduino Uno R3 for control.

First Results of Impacts from Pozo Sacha 480: An analysis of the ecological, social, and cultural damage to the indigenous community, Loma del Tigre

Catherine E. Baltazar '16, Environmental Studies and Cinema and Media Studies
ADVISOR: *Alden Griffith, Environmental Studies*

The following study analyzed the different ways a particular petroleum platform, Pozo Sacha 480, run by the company, Operaciones Rí Napo CEM, affected an indigenous community in the Ecuadorian Amazon Basin, called Loma del Tigre. Among the different aspects studied are the

environmental impacts on the water quality of the local river, a once commonly used water-source for the community, and the impacts on the air quality. In order to test the water quality of the river, three different sites were chosen for macroinvertebrate collection. Macroinvertebrates are among the best indicators of water quality due to their ability to sustain life in pollution-ridden waters. Results showed that the species collected from the river were categorized under Moderately Tolerant and Tolerant, hence contributing to the poor water quality of the water-source due to petroleum industry activities. Air quality was tested using hand-made air filters designed to capture particulate matter in the air. Filters were set up in four different sites around the community. By comparing the results of the air filters to a standard Air Quality Index (AQI), one was able to see that the air quality in the community was under the category: "Unhealthy for Sensitive Groups." Lastly, 25 community members were interviewed and asked to complete a survey to analyze the social and cultural impacts the industry has on the community. The results showed that community members have uncertainty regarding the petroleum industry; many are aware of the environmental and health impacts, but know there are temporary economic benefits that can prove helpful.

Menstruation in Judaism

Ariel T. Cohen '18, Undeclared
ADVISOR: *Justin Armstrong, Writing Program*

The research I hope to present at the Ruhlman Conference is on the rituals and laws of menstruation in Judaism. These rituals and laws were first introduced in the Torah as part of the laws of family purity, or niddah. These laws commanded that menstruating women not participate in certain activities, such as sexual intercourse, and outlined a purification process that women must undergo after they finish their menstrual period. Today there is a significant range in the way in which the rituals and laws of menstruation are kept among the main three denominations of Ashkenazi Judaism and in Sephardic Judaism. Additionally, there is now a movement of Jewish feminism that attempts to combine the laws of niddah and feminist ideals. My research for this project consisted of a review of liturgical and academic texts, interviews

and a survey of Jewish students at Wellesley College.

Stability and Diversity in a North American Fiddling Tradition

Juliette C. Mann '17, English
ADVISOR: *Sally Sommers Smith, Biological Sciences*

My research with Professor Sommers Smith is an interdisciplinary project that utilizes statistical models of biological diversity to probe changes in the recorded repertoire of North American traditional fiddle music. I became familiar with the music of Cape Breton Island and experienced the dance and social contexts of the music at Boston-area concerts. Second, I learned to use the Alan Snyder online database of all recordings of Cape Breton traditional fiddle music. Professor Sommers Smith and I identified performers from this database and assessed the diversity of their recorded repertoires using the Shannon model of biodiversity. We are currently working to utilize JMP 10 statistical software to calculate diversity measurements and to display our results. Finally, we will learn to interpret our statistical results and analyze them using ethnomusicological principles of stability and change in traditional music, as well as theories of musical revival and commercialization. We are learning that a traditional music repertoire can change over a very short period of time.

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